

U. S. DEPARTMENT OF COMMERCE
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WEATHER BUREAU
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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

FEBRUARY 1964
Volume 15 No. 2



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NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, \$2.50 domestic, \$3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 15 No. 2

FEBRUARY 1964

GENERAL SUMMARY OF WEATHER CONDITIONS

During the first week of February, an intense, slow moving Low brought a foot or more of snow over a wide area extending from New Mexico to south-central Nebraska. The snow reached depths of 18 inches from Hereford, Tex., northeastward to the Oklahoma Panhandle and from 22 to 25 inches in the Borger, Tex., vicinity. Strong winds piled the snow in drifts up to 20 feet deep, isolating some Texas towns and ranches. Near the weekend, a storm moved from Canada into the northern Great Plains. Winds increased to 50 m.p.h., in gusts, and the temperature at Bemidji, Minn., plunged to 30° below zero.

During the second week, a storm brought generous rains to the western edge of Oregon and Washington and, as the storm moved inland, snow flurries fell in the higher elevations of those States and eastward to the Rocky Mountains.

A storm centered over the northern portion of the Gulf of Mexico produced rains along the Gulf during the third week of February. The storm intensified and moved up the Atlantic seaboard, bringing rain to the Southeast and snow to the Northeast. A storm developed over the Rocky Mountains. As it spread southward through the northern and central Rockies and adjacent Great Plains, the winds gusted to 60 m.p.h. A storm over southeastern New Mexico moved eastward, bringing snow flurries to that State and to nearby parts of Texas. Drenching rains fell over parts of south Texas and 2 to 8 inches of snow over other parts. Flurries fell at Houston and Galveston.

In the final week of February, a storm intensified over southern Saskatchewan, Canada. It brought subzero temperatures to the northern Great Plains. Northerly winds reached 60 m.p.h. at some locations in the northern Rocky Mountains and the northern Great Plains. As the arctic front continued southward and eastward, subzero temperatures occurred over the northern Appalachians and sub-freezing weather reached the Gulf of Mexico. Light snow slicked the highways of the central Great Plains and snow and rain fell over the highlands of the Middle Atlantic States. A disturbance centered over the Gulf of Mexico produced generous rains along the coast. As the storm moved up the Atlantic coast, it produced several inches of snow over the southern Appalachians.

Tatoosh Island, Wash., received 6.80 inches of rain during February. This is slightly less than normal. In other parts of Washington, February 1964 was among the driest Februarys of record. It was the driest February at Olympia and the third driest at Walla Walla. It was the third February of record at Olympia in which no snow fell. Oregon received little rain during the month. It was the driest February in 28 years at Pendleton, and the driest since 1932 at Roseburg. At Salem, it was the second driest February of record and the coldest since 1956.

Idaho was cold and dry. At Boise, February 1964 was the coldest February since 1933 and the first February of record in which the temperature did not rise to 45°. At Pocatello, it was the coldest February of record and the driest since 1956. Temperatures at Idaho Falls averaged

11.5° below normal, making it the coldest February since 1950. Boise, where the sunshine in February averages 48 percent, recorded 86 percent of sunshine in February 1964.

California stations recorded dry, sunny weather in February 1964. At Blue Canyon, the precipitation was the least of record, 0.82 inch. Rainfall at Red Bluff totaled only 0.02 inch, the least amount in 68 years. The sun shone 94 percent of the time it was above the horizon, setting a new record for Red Bluff. At Fresno, it was the third February of record (1878) without measurable rain. That station received a light sprinkle. Long Beach received no rain in February. It was the first time in 21 years there was neither rain nor heavy fog in February. Frequent Santa Ana winds were noted at Burbank, the relative humidity continued low, and, with only a trace of rain, the record set in 1933 was equaled.

At Los Angeles, there were 24 clear days; twice the average number for February. Similarly, Sacramento, San Diego, San Francisco, Santa Maria, and Santa Catalina experienced mostly sunny skies with low relative humidity and little rain.

Nevada and Arizona were cool and dry in February. At Elko, Nev., temperatures averaged below normal on every day except the 1st. At Ely, sunshine averaged 85 percent, setting a new record; and the rainfall, 0.07 inch, also set a new record. Reno was cool and dry. The lack of snow caused the ski slopes to become icy and in generally poor condition by the end of the month.

The drought continued at Prescott, Ariz., where the rainfall totaled only 0.07 inch. Flagstaff reported dry (0.14 inch) and windy weather. Phoenix received only 0.01 inch of rain. It was the coldest February since 1939 at Phoenix and the third coldest of record. Similarly, at Tucson, it was the coldest February since 1939.

New Mexico continued cold. At Albuquerque, it was the coldest February since records began in 1893. The snowfall, 8.2 inches, exceeded all previous February records. At Roswell, it was the coldest February since 1905, and at Raton, it was the next to the coldest of record. Colorado Springs, and Pueblo, Colo., were cool and dry. Denver was cooler but somewhat wetter than normal.

Wyoming was cold, windy, and dry. In contrast, Montana experienced warmer than normal temperatures. Temperatures at Glasgow averaged more than 14° above normal. At Havre, it was the warmest February since 1954, the driest since 1934, and the windiest since records began in 1879.

February was dry over the northern Great Plains. Huron and Sioux Falls, S. Dak., reported the warmest in 10 years and the driest in 15 years. Many stations remarked about the absence of severe storms. Temperatures averaged 0.4° above normal at Kansas City, Mo. In Kansas, the dry pattern continued.

Abilene, Tex., reported February as cool and wet. That station received 4.0 inches of snow on the 20th. At Dallas and Ft. Worth, February was cool and dry, but neither

GENERAL SUMMARY OF WEATHER CONDITIONS--Continued

the coolest nor the driest of record. It was the coldest of record at Corpus Christi.

Cool weather predominated over the lower Mississippi River Valley. The highest temperature at Memphis, Tenn., was 62° on February 2. Memphis usually records 70° on one or more days in February.

Cool weather persisted over the upper Ohio River Valley. Monthly minimums were not extremely low, but temperatures averaged much lower than usual. Akron, Ohio, recorded no zero temperatures during the month, but the monthly average was several degrees below normal.

Buffalo, N. Y., noted that the minor light snows benefited winter sports but Albany remarked that 21.4 inches of snow was rather heavy for February. Snowfall was heavy in Pennsylvania. The heavy snow at Allentown on the 19th caused many schools to close. Harrisburg received 30.2 inches, more than 4 times the normal fall during February. Nantucket, Mass., received unusually heavy snow from several storms. Worcester, Mass., experienced a normal February, except for the unusually heavy snow.

Virginia, West Virginia, and North Carolina also received heavy snow. Beckley, W. Va., recorded 30.8 inches, or 4 times the normal amount. Both Elkins and Charleston set new snowfall records for the month. Asheville, N. C., set a new February record with 13.9 inches of snow.

FEBRUARY 1964

Southeastern stations called February cold, cloudy, windy, wet, and generally unpleasant. At Athens, Ga., temperatures averaged colder than in any February since 1921 and Atlanta, Ga., complained that there was about twice the usual number of rainy days.

Florida was cool. Temperatures at Jacksonville averaged several degrees below normal and at Key West February 1964 was the coolest in several years.

In summary, temperatures averaged above normal over Washington and northern Oregon, most of the Missouri and upper Mississippi River Basins, and over Maine. Temperatures over north-central Montana and northwestern North Dakota averaged more than 10° above normal. Temperatures averaged below normal over most of the rest of the United States. In central New Mexico, temperature departures exceeded -10°.

Most of the area west of the Rocky Mountain States received less than 0.50 inch of rain during February. The main exceptions included the western half of Washington, the coastal portion of Oregon, and the extreme northwestern part of California. Most of the area southeast of a line from northern Oklahoma to southern Maine received more than 2 inches. The main exception was the State of Texas, where the rainfall was generally less than 2 inches. Precipitation exceeded 4 inches over most of Mississippi, Alabama, and the Southern and Middle Atlantic Coastal States.

CONDENSED CLIMATOLOGICAL SUMMARY

FEBRUARY 1964

Section	Temperature								Precipitation							
	Monthly extremes								Monthly extremes							
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least						
Alabama	Citronelle	75	13	Valley Head	9	23	Headland	In.	Albertville 2SE	.00						
Alaska	2 Stations	55	24+	Allakaket	-60	18	Little Port Walter	37.67	Big Delta FAA	.10						
Arizona	Yuma WBAP	82	10	Maverick	-20	13	Alpine	1.12	55 Stations	.00						
Arkansas	4 Stations	68	10+	Gilbert	7	22	Mount Magazine	4.46	Rogers	.67						
California	Indio US Date Garden	86	20	White Mountain 2	-10	25+	Crescent City 7ENE	3.95	58 Stations	.00						
Colorado	Holly	67	2	Taylor Park	-38	15	La Veta	3.21	2 Stations	.00						
Connecticut	Westbrook	52	5	Coventry	-11	23	Norfolk 2SW	4.36	Coventry	1.50						
Delaware	Lewes 1SW	59	5	Bridgeville 1NW	10	13	Dover	5.35	Newark University Farm	2.48						
Florida	6 Stations	87	29+	DeFunia Springs	18	10	Tallahassee WBAP	11.50	Marathon Shores	1.15						
Georgia	Folkston 9SW	79	15	Blairsville Exp Sta	7	23	Nashville 5SE	9.13	Cartersville	4.02						
Hawaii	2 Stations	87	17+	Mauna Loa Slope Obs.	21	26	Mountain View 91	31.67	7 Stations	.00						
Idaho	Slate Creek RS	57	10	Island Park Dam	-30	27	Avery Ranger Station	3.77	2 Stations	.00						
Illinois	3 Stations	62	2	Freeport	-8	27	Virden	3.67	Princeton 1N	.26						
Indiana	W Baden Springs Col	63	26	Wheatfield 2NNW	-9	27	Frankfort Disposal Pl	3.42	Albion 5F	.09						
Iowa	3 Stations	59	29	Elkader	-9	27	Fort Madison	D 1.29	4 Stations	T						
Kansas	2 Stations	67	1	Kirwin	-5	16	Plains	2.31	Havensville 2E	.05						
Kentucky	Hickman 1E	64	3	Blaine 1W	-6	13+	Cumberland	5.68	Paducah	1.47						
Louisiana	Buras	77	13	Ashland 2S	14	22	Buras	10.16	Sterlington Dam	1.68						
Maine	5 Stations	45	26+	Haynesville	-30	10	Jonesboro	4.59	Bingham Wyman Dam	.26						
Maryland	La Plata 1W	65	5	Oakland 1SE	-17	12	Snow Hill	7.23	Crisfield Somers Cove	D .77						
Massachusetts	2 Stations	50	27+	Birch Hill Dam	-17	28	Spot Pond	5.67	Adams	.44						
Michigan	Stephenson	55	29	2 Stations	-28	24	Benton Harbor Airport	2.94	Saginaw Consumer P Co	.05						
Minnesota	Preston	58	29	Bigfork	-37	8	Walker AH Gwah Ching	.75	2 Stations	.00						
Mississippi	Hattiesburg	75	5	4 Stations	13	23	Eupora	7.49	Oakley Exp Station	2.22						
Missouri	Alton	69	29	Edgerton	-7	26	Fisk	5.25	Maryville 2E	.22						
Montana	Telegraph Creek	66	4	3 Stations	-29	27+	White Sulphur Springs	D 3.70	Biddle	.00						
Nebraska	Cambridge	66	1	Broken Bow 2W	-12	16	Loup City 7NNE	2.17	Gavins Point Dam	.06						
Nevada	Sunrise Manor Las Vegas	75	10	Charleston	-28	26	Austin	.73	11 Stations	.00						
New Hampshire	Epping	49	26	Fabyan	-30	10	Dublin	3.92	Woodstock	.73						
New Jersey	2 Stations	57	26+	Layton 2	-5	23	Base River St Forest	5.27	Sussex	1.57						
New Mexico	Jal	74	10	Eagle Nest	-41	15	Lake Maloya	6.56	6 Stations	.00						
New York	2 Stations	54	5	Paul Smiths	-29	10	Polaski	D 5.08	Chazy 3E	.43						
North Carolina	Tryon	69	2	Banner Elk	-2	23	Shallotte 4WNW	8.16	Wilbur 2NW	2.15						
North Dakota	2 Stations	54	28	Willow City	-35	26	Hannah 2N	.79	4 Stations	T						
Ohio	Fernbank-Cincinnati	61	16	Millport 2NW	-12	24	Racine Dam 23	3.08	2 Stations	.48						
Oklahoma	Clayton	70	1	Boise City 2E	-3	7	Altus	4.04	Port Supply Dam	.32						
Oregon	Brookings	76	20	Seneca	-19	5	Tidewater	5.56	No Ranch	.00						
Pennsylvania	Farrell Sharon	58	5	DuBois 7E	-18	23	Malroy	5.43	Covington 2WSW	1.08						
Puerto Rico	Juan Diaz Camp	101	28	Junco 1E	51	27	Rio Blanco Upper	4.59	Caonillas Utuado	.00						
Rhode Island	3 Stations	47	5	Kingston	0	23	Block Island WBAP	3.54	Providence WBAP	3.15						
South Carolina	Beaufort 7SW	71	18	Chester 2WSW	12	12	McClellanville	8.90	Fort Mill 4NW	3.15						
South Dakota	2 Stations	61	29+	Camp Crook	-24	23	Lead 1SE	4.32	8 Stations	T						
Tennessee	5 Stations	64	4+	Mountain City 2	-4	23+	Crossville Exp Sta	6.30	Portland Sewage Plant	1.96						
Texas	Alice	87	13	Panhandle	0	7	Freeport 3NW	6.22	13 Stations	.00						
Utah	2 Stations	67	28+	Woodruff	-24	26	Silver Lake Brighton	1.53	15 Stations	.00						
Vermont	Bellows Falls	45	6	2 Stations	-25	28+	Mays Mill	3.28	Cornwall	.48						
Virginia	Hopewell	68	5	Burkes Garden	-10	12	Montebello 3NE	6.62	Hog Isl Ltl Machipongo	1.79						
Washington	Dallesport FAA AP	68	23	2 Stations	-1	23+	Sappho 8E	12.34	3 Stations	.00						
West Virginia	Charleston 1	64	6	Canaan Valley	-19	12	Pickens 1	7.60	Wheeling Warwood Dam 12	1.77						
Wisconsin	Hancock Exp Farm	60	29	3 Stations	-29	24	Gurney	2.12	8 Stations	T						
Wyoming	Cody 1SSW	63	4	Hondurant 3NW	-33	3	Burgess Junction	3.41	La Barge 4WNW	T						

+ And also on an earlier date or dates

NOTE: Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA
METRIC UNITS

FEBRUARY 1964

State and Station	Pressure				Temperature									Precipitation						Wind				No. of days					
	Elevation (ground)	Station Ø	Sea level	Average maximum	Average minimum			Departure from normal			Highest	Lowest	Date	No. of days	Min. 0 C or lower	Average relative humidity	Average dew point	Total	Departure from normal	Greatest in 24 hours	No. of days	With thunderstorms	Snow, Sleet	Total	Maximum depth on ground	Average speed	Prevailing direction	Fastest mile (1.6 kilometers)	No. of days (sunrise to sunset)
					C.	C.	C.	C.	C.	C.																			
MINNESOTA ROCHESTER ST CLOUD	395 315	976.2 975.2	1014.5	- 1.7 - 0.6	-10.6 -12.8	- 4.4 - 6.6	4.4 3.7	13.3 8.9	29 29	-18.9 -20.6	27 23+	0 0	29 29	-10.6 -10.6	66	1 1	- 19 - 19	1 1	3 2	0 0	20 13	T 25	6.2 1.1	32 17.4*	21 29	9 11	11 9	9 9	5.6 5.0
MISSISSIPPI JACKSON MERIDIAN VICKSBURG U	93 89 71	1004.2 1002.9 1006.9	1016.6 1017.3 1006.9	12.8 12.8 12.8	- 0.6 - 0.6 - 3.3	6.9 6.1 7.9	18.9 20.6 19.4	10 10 10	- 8.5 - 8.9 - 3.4	23 23 22	0 0 0	12 19 5	0.6 0.6 0.6	67 71 83	59 104 83	7 - 26 - 52	23 32 23	9 9 8	0 0 1	T 0 T	4.3 3.3 4.1	12 18 12.1	10.3* 10.3* 12.1	14 15 14	5 7 7	9 7 7	7 7 5.9	5.8 6.4 5.3	
MISSOURI COLUMBIA KANSAS CITY ST JOSEPH ST LOUIS ST LOUIS RFC SPRINGFIELD	237 226 247 163 142 386	985.9 979.6 980.2 994.6 966.9	1015.2 1015.5 1016.0 1016.9 1015.8	6.1 7.2 6.1 6.1 6.1	- 4.4 - 2.2 - 1.1 - 2.2 - 3.9	0.7 2.3 0.1 2.1 2.2	13.9 15.6 13.3 13.9 13.9	2 2 1 25 2	-15.6 -9.4 -15.0 -10.6 -11.1	11 26 26 27 24	0 0 0 0 0	27 22 26 23 24	- 5.6 - 5.0 - 6.1 - 6.7 - 5.0	67 62 61 63 63	42 42 58 62 42	- 4 7 17 22 8	15 7 17 10 8	6 6 9 10 8	0 0 0 0 0	343 216 137 231 165 58	152 102 51 152 102 25	5.0 4.4 4.5 4.3 10.2 5.0	32 20 32 30 16 16	13.9 13.9 13.0* 13.9 12.1 12.1	NW SW NW SW SE SW	6 29 11 29 3 5	11 7 11 12 3 4	6 7 5 3 9 5	5.3 5.3 5.2 5.5 5.4 6.7
MONTANA BILLINGS GLASGOW GREAT FALLS HAVRE HELENA KALISPELL MILES CITY MISSOULA	1087 694 1116 787 1187 904 801 972	889.7 938.0 887.4 924.6 874.0 914.3 1016.2 905.4	1016.8 1018.6 1018.6 1021.2 1021.2 1016.2 1024.3	5.0 3.9 5.6 5.6 2.2 2.8 3.9 0.6	- 5.6 - 8.3 - 4.4 - 4.4 - 7.8 - 11.7 - 8.3 - 11.1	- 0.3 - 2.4 - 0.6 - 0.1 - 2.7 - 4.5 - 2.5 - 11.1	3.2 7.8 5.1 8.6 2.2 4.0 4.0 2.5	13.9 10.6 14.0 13.3 7.8 7.8 10.6 6.7	10 28 24 24 25 25 28 25	-16.1 -16.7 -15.0 -12.2 -21.7 -0.3 -16.1 -13.0	25 23 26 28 24 25 20 25	0 0 0 0 0 0 0 0	- 9.4 - 16.7 - 8.9 - 12.2 - 21.7 - 2.7 - 6.7 - 8.3	54 54 54 54 64 73 73 77	9 5 13 3 7 13 14 13	- 6 2 6 4 4 5 8 9	6 5 4 3 7 5 7 6	0 0 0 0 0 0 0 0	130 216 145 235 160 170 140 226	76 102 51 59 76 356 102 229	7.0 4.4 8.3 21.9 4.5 2.4 6.1 2.5	24 23 17.4 17.4 27 30 30 34	19.2 W N W 16.5 20.4 SE 20.1	5 9 5 5 4 5 4 4	1 2 5 5 6 11 11 6	11 7 5 6 4 16 16 20	7.6 7.8 5.0 5.0 5.9 6.6 5.4 5.2		
NEBRASKA GRAND ISLAND LINCOLN U NORFOLK NORTH PLATTE OMAHA OMAHA N OMAHA AP SCOTTSBLUFF VALENTINE	561 351 471 847 298 403 1204 789	947.9 958.1 958.1 914.2 974.6 965.8 876.6 919.9	1016.5 1015.9 1015.9 1015.9 1015.8 1016.2 1017.3 1024.3	3.3 5.0 1.1 3.3 5.6 3.9 3.9 3.9	- 8.3 - 5.6 - 9.4 - 11.1 - 7.2 - 7.2 - 10.6 - 9.4	- 2.6 - 0.4 - 4.1 - 1.1 - 0.8 <br;> </br;>																							

See footnotes at end of table

CLIMATOLOGICAL DATA

METRIC UNITS

FEBRUARY 1964

State and Station	Elevation (ground)	Pressure			Temperature												Precipitation						Wind			No. of days (sunrise to sunset)			Sky cover, tenths (sunrise to sunset)	Possible sunshine %		
		Station #	Sea level	Average maximum	Average minimum	Departure from normal			Highest Date	Lowest Date	Max. 32.7 °C or above	Min. 0 °C or lower	Average dew point	% Relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days	With thunderstorms	Total	Maximum depth on ground	Average speed	Prevailing direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10			
						C.	°C.	°C.								Total	Greatest in 24 hours	No. of days	With thunderstorms	Total	Maximum depth on ground	Average speed	Prevailing direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10			
VERMONT BURLINGTON	M. 101	994.5	1009.6	- 2.2	-13.9	- 8.2	-0.1	2.8	64	-22.8	10	0	29	-13.3	63	15	- 29	5	12	0	224	102	4.3	18	18.9	NW	2	6	7	16	6.9	59
VIRGINIA LYNCHBURG NORFOLK RICHMOND ROANOKE	289 8 49 358	987.2 1011.4 1005.5 970.3	1012.7 1012.8 1013.1	6.7 - 0.6 - 2.8 6.7	- 2.8 - 0.9 -1.7 - 2.8	2.2 17.2 2.9 2.0	-1.7 - 0.9 18.3 -2.0	18.3 17.2 16.9 17.2	5 6 5 5	- 8.9 - 9.4 - 8.9 - 9.4	23 13 6 23	0 0 0 0	26 19 24 25	113 116 113 135	46 34 40 44	36 23 31 7	10	0	300 264 259 178	127 6.2 4.1 5.0	3.4 2.4 1.1 1.6*	NE SW SW SW	18 6 31 29	11 11 10 16	7 8 9 10	11 10 10 11	5.2 5.4 5.3 5.8	53 64 64 64				
WASHINGTON OLYMPIA SEATTLE TACOMA SEATTLE U SPOKANE STAMPEDE PASS R TATOOSSH ISLAND R WALLA WALLA U YAKIMA	58 122 4 718 1206 31 289 323	1018.3 1010.8 1025.3 883.3 1023.0 1024.3 984.2 1024.5	1025.3 1025.3 100.0 952.6 883.3 1024.3 984.2 1024.5	9.4 8.9 1.1 2.8 1.1 - 4.4 1.1 9.4	- 1.7 - 6.1 5.2 - 6.1 - 4.4 - 1.4 - 6.5 - 5.0	3.9 12.2 6.8 5.6 7.8 2.2 11.1 5.7	-1.1 -0.4 0.3 -0.4 - 4.4 1.6 0.3 1.7	13.9 12.2 13.3 5.6 7.8 2.2 11.1 16.1	23 22 3 27 22 23 22 23	- 6.1 2.2 0.6 - 12.8 1.7 - 7.8 1.7 - 8.9	274 54 74 79 22 32 173 12	0 12 0 29 0 0 10 0	18 0.6 0 - 5.0 3.3 - 3.3 4 26	86 74 39 79 25 223 82 65	-104 -66 - 60 - 50 - 47 - 48 4 - 5.0	29 11 12 10 17 15 4 22	11 0 1 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	3.3 3.8 0 76 3.6 6.7 0 3.4	18 20 21.5 22 18.8 6 25.5 28	14.3* 13.4* SW 1765 4216 NW 19.7*	18 23 SW 16 16 4 28	29 29 29 132 4216 4 17	4 6 7 10 12 3 7 11	8 8 8 6.3 6.8 7 19 11	17 15 49 6.3 6.8 7.3 6.6 6.0	7.3 6.9 49 68 68 43 6.0				
WEST INDIES SAN JUAN P.R. SWAN ISLAND	2 9	1012.9 1011.3	1015.8 1015.8	30.0 28.9	20.6 24.4	25.3 26.6	1.7 0.8	32.8 30.0	29	17.8 30.0	5 19	4 0	0 0	20.6 21.1	77 19	43 10	- 30 - 19	13 5	11 4	0 0	0 0	0 0	3.1 10.3	E 14	10 10	5 3	4.5 3.8	78				
WEST VIRGINIA BECKLEY CHARLESTON ELKINS HUNTINGTON PARKERSBURG U	763 286 600 252 187	922.9 977.7 942.0 983.3 1015.0	1014.7 1014.1 1013.2 1014.3 1015.2	2.2 5.0 - 3.9 - 3.7 4.4	- 6.7 - 3.9 - 0.7 - 3.7 - 4.4	- 2.2 14.4 - 13.3 12.2 - 3.1	13.9 14.4 - 13.3 - 23.9 - 12.8	5 12 12 12 12	-15.6 - 13.3 - 13.3 - 23.9 - 12.8	23 12 0 12 12	0 26 0 28 27	- 6.1 - 4.4 - 4.7 - 6.7 - 4.4	77 72 91 77 78	97 17 1 75 8	19 19 17 11 11	1 1 0 0 0	1 0 0 0 0	1 0 0 0 0	5.0 2.9 9.4* 3.6 3.2	30 23 22 30 24	15.6* 9.4* 13.4* 13.4* 10.3*	15 22 16 27 25	15 7 17 4 8	6 5 7 6 5	4 17 7.0 19 16	19 7.0 7.6 7.6 6.7						
WISCONSIN GREEN BAY LA CROSSE MADISON MILWAUKEE	208 199 262 205	989.8 989.0 977.6 988.5	1013.3 1014.8 1014.1 1014.3	- 0.6 2.8 - 10.6 1.1	-11.1 - 8.9 - 10.6 - 8.9	- 5.9 - 2.9 - 3.9 - 3.7	1.8 4.1 3.0 1.6	12.2 14.4 11.7 10.0	29 29 27 29	-24.4 -17.2 -19.4 -18.9	24 24 27 24	0 0 0 0	29 29 10 29	-10.0 - 9.4 -10.0 - 8.3	72 65 63 71	7 2 - 2 10	- 21 1 6 25	3 1 6 9	5 4 3 6	0 0 0 0	81 25 94 145	381 554 749 102	5.0 2.9 3.6 5.3	30 23 30 21	15 22 16 15	6 7 4 8	4 17 6 9	19 7.0 19 5.5	7.6 7.0 7.6 5.7			
WYOMING CASPER CHEYENNE LANDER SHERIDAN	1621 1867 1696 1202	834.5 808.5 833.1 882.6	1018.4 1017.3 1019.1 1017.9	- 0.6 0.6 1.1 2.8	-11.1 -11.7 - 12.8 - 8.9	- 6.0 - 5.4 - 5.7 - 2.9	1.8 4.1 8.9 1.6	7.2 11.1 8.9 12.8	10 10 9 4	-18.9 -17.8 -20.6 -18.9	26 26 26 15	0 0 0 0	29 29 29 29	-11.1 -13.3 -13.3 - 7.8	68 55 57 70	18 6 30 21	- 3 - 8 13 2	9 3 10 14	12 12 11 0	0 0 0 0	323 84 625 398	152 51 254 102	6.9 8.6 3.0 5.7	23 31 14 31	16.1 24.1 15.5 28.2	4 13 9 5	14 10 9 9	11 10 11 17	11 10 9 7.5	6.4 5.8 6.4 5.6		

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day and may include precipitation from the last day of the previous month or the first day of the following month.

Wind directions under prevailing direction and fastest mile are to 8, 16, or 36 points of the compass. Directions to 36 points are printed in tens of degrees.

* Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed. This station is not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

A Maximum hourly average.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

Wind direction to 8 compass points only.

+ And also on an earlier date or dates.

Ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.

Data in this table are obtained by conversion from data in the English Units table.

STORM SUMMARY

FEBRUARY 1964

STATE	TORNADOES				HAILSTORMS				WINDSTORMS				LIGHTNING				# HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ALL OTHER			
	NUMBER	DEATHS	INJURIES	DAMAGE	DEATHS	INJURIES	DAMAGES	PROP. ERTY	DEATHS	INJURIES	PROP. ERTY	DAMAGES	PROP. ERTY	DEATHS	INJURIES	PROP. ERTY	DAMAGES	PROP. ERTY	DEATHS	INJURIES	PROP. ERTY	DAMAGES	PROP. ERTY	DEATHS	INJURIES	PROP. ERTY	DAMAGES	
Alabama *																												
Alaska *																												
Arizona *																												
Arkansas *																												
California																												
Colorado *																												
Connecticut *																												
Delaware																												
Florida																												
Georgia *																												
Hawaii *																												
Idaho																												
Illinois *																												
Indiana *																												
Iowa *																												
Kansas *																												
Kentucky *																												
Louisiana																												
Maine																												
Maryland																												
Massachusetts																												
Michigan *																												
Minnesota *																												
Mississippi																												
Missouri *																												
Montana																												
Nebraska *																												
Nevada *																												
New Hampshire																												
New Jersey *																												
New Mexico																												
New York																												
North Carolina																												
North Dakota *																												
Ohio *																												
Oklahoma																												
Oregon *																												
Pacific Area *																												
Pennsylvania *																												
Puerto Rico *																												
Rhode Island *																												
South Carolina *																												
South Dakota N																												
Tennessee																												
Texas	1	1	0	1	?																							
Utah *																												
Vermont																												
U.S. Virgin Is. *																												
Virginia *																												
Washington *																												
West Virginia																												
Wisconsin *																												
Wyoming *																												

* No occurrence of storms or unusual weather phenomena.

+ Includes heavy sleet storm.

Freezing drizzle and freezing rain, commonly known as glaze.

¶ For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

N No report received by printing deadline.

R Rain

S Storm tides

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5,000,000

7 \$5,000,000 to \$50,000,000

8 \$50,000,000 to \$500,000,000

9 \$500,000,000 to \$5,000,000,000

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

FEBRUARY 1964

Flooding during February was mostly light. Only low-lying areas were affected. Damages reported were minor.

ATLANTIC SLOPE DRAINAGE

Snow cover in the Lehigh River Basin ranged from an average of 5 inches from Lehighton, Pa., to 23 inches over the Pocono plateau in Pennsylvania. Amounts of snow in the Lackawaxen River Basin ranged from 8 inches at Hawley, Pa., to 23 inches at Pleasant Mount, Pa.

The water content of the snow cover in the Susquehanna River Basin in Pennsylvania at the end of February averaged about 2.75 inches. Ice was reported on most streams in the northern areas.

Light to moderate flooding occurred on the Neuse and lower Cape Fear Rivers in North Carolina from heavy rainfall on the 6th, 15th, 18th, and 19th. Rainfall on the 6th averaged from around 1 to 1 3/4 inches with local heavier amounts. Rainfall on the 15th averaged about 1 inch. Rainfall on the 18th and 19th ranged from 1/2 inch to 1 inch. The combination of the latter two periods of rainfall resulted generally in the highest stages since March 1963. Stages on the Cape Fear ranged from around bankfull in the middle to near 8 feet above bankfull in the lower portions. On the Neuse River, stages ranged from bankfull to 4 feet in flood. Sharp rises occurred on the Tar, Dan, and the upper portions of the Roanoke and Cape Fear Rivers. No damage was reported from the overflows.

Heavy precipitation on the 16th and 18th caused flooding along streams in South Carolina. This was the second consecutive month that precipitation in the Pee Dee and Santee River Basins was well above average, ranging from 4 to 9 inches. Some minor damage occurred to small grains planted along the banks of the Rocky River. Minor damage occurred to cultivated lands and lowland pastures along the Broad, Congaree, and Wateree Rivers. Logging operations in the lowlands were interrupted with resultant loss of wages and business.

Minor flooding prevailed during most of February on the Savannah River below Augusta, Ga., and on the Ogeechee River. Minor losses were reported to cattle grazing interests and building contractors.

There were two periods of flooding on the Ocmulgee,

Altamaha, and Satilla Rivers in Georgia during February. No damage resulted from the high water other than that which normally occurs in the lowlands at such stages. Lumbering operations on the lower Altamaha and Satilla were hampered due to flooding of lowlying timberland.

EAST GULF OF MEXICO DRAINAGE

Weather conditions over the Flint and Apalachicola River Basins during February were similar to those occurring during January. Rainfall occurred at regular and very frequent intervals and temperatures were persistently cooler than normal. The heaviest rains occurred on the 18th, with amounts of 1.0 to 1.5 inches in the upper areas and 2.0 to 2.5 inches in lower areas. These recurring rains kept the rivers high throughout the month, with monthly crests occurring a few days after the heavy rains of the 18th. Flood stages were exceeded only at Albany and Bainbridge, Ga., on the Flint River and at Blountstown, Fla., on the Apalachicola. Only low-lying areas were affected on the Flint at Albany, Ga., where flood stage was exceeded by about 2.5 feet. The Apalachicola River was in flood at Blountstown, Fla., from January 9 through the entire month of February. Little damage resulted from this flooding as only wooded and unpopulated areas were involved. Operations of the lumber industry were retarded somewhat by the high water, but most of the personnel were assigned to higher ground away from the reach of the high water.

Minor flooding occurred on the Pearl River at Bogalusa, La., on the 28th due to moderate rain on the 25th. No damage resulted from the overflow.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--Temperatures over the Upper Mississippi Basin averaged 4° to 8° above the long-term mean during February. Precipitation averaged much below the mean. Similar conditions occurred during January. Navigation on the Mississippi River opened at La Crosse, Wis., and Guttenberg, Iowa, on February 28.

A comparison of snow depths in the Upper Mississippi Basin on February 29 with that of other years is given in the following table:

COMPARATIVE SNOW DEPTHS (INCHES)

Station	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955
(Minnesota)										
Bemidji	9	4	24	5	5	4	T	14	22	25
International Falls	14	13	23	14	11	17	T	15	12	--
Duluth	12	10	23	8	17	9	3	22	--	--
Alexandria	T	2	17	0	4	1	0	4	12	10
New Ulm	T	2	17	0	T	T	0	0	6	7
Minneapolis	0	3	24	0	2	0	0	T	7	6
Rochester	0	3	13	2	3	13	0	T	6	1
(Wisconsin)										
Park Falls	7	16	33	6	17	10	3	16	20	--
Wausau	11	7	30	1	5	9	0	1	7	--
Portage	0	6	24	0	4	10	T	0	T	--

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

FEBRUARY 1964

The first towboat of the season reached the Moline, Ill., area on the 22d for the earliest opening of navigation on record. The previous record was February 23, 1953. All pools below Dam 13 were practically free of ice on the 19th.

Navigation in the Burlington, Iowa, area began on the 14th, about 3 weeks ahead of normal. Some of the tributaries still had a lot of ice at the month's end, but areas free of ice were large. River stages were generally very low throughout the month.

Missouri Basin.--Precipitation was below normal during February in South Dakota. Temperatures were mostly above normal. At the end of the month the only snow cover remaining was in the Black Hills. Elsewhere the ground was bare except for a few scattered snow drifts.

The ice broke up on the Missouri River at Sioux City, S. Dak., between the 10th and 12th. Except for occasional flow ice, the channel was open the remainder of the month. Tributary streams in South Dakota were frozen at the end of February.

Only traces of snow were present over the Elkhorn River Basin in Nebraska at the end of the month. There were many areas free of ice in the Elkhorn and major tributaries by the close of the month.

Ohio Basin.--The ice gorge on the Allegheny River between Lock 8, Mosgrove, Pa., and Lock 9, Rimerton, Pa., remained about stationary during the month. Backwater from this gorge caused gage height on the lower gage at Lock 9, Rimerton to remain 8 to 10 feet above normal, but well below flood stage. Below normal tem-

peratures over the Allegheny Basin from the 20th to the end of the month resulted in a general ice condition along the entire river. The Monongahela and upper Ohio Rivers were generally free of ice throughout the month.

Mild weather during the last 2 weeks of the month melted most of the ice in the Scioto River Basin in Ohio. Most of the snow cover in the basin below Columbus, Ohio, had melted by the end of the month.

The only flooding in the Ohio Basin during the month occurred on the Elk River at Fayetteville, Tenn., on the 16th. This overflow was due to general rains on the 15th and 16th which averaged about 2.5 inches. No damage resulted.

Arkansas Basin.--Ten to 12 inches of snow was reported in the western portion of the Arkansas Basin on the morning of the 5th. Heavy rains occurred in the eastern portion, averaging 1.3 inches from Tulsa, Okla., to Fort Smith, Ark. This produced only minor rises due to the deficiency of precipitation during the last few months. The Arkansas River at Tulsa, Okla., showed a monthly mean stage of 3.0 ft., which was 1.4 ft., below the normal stage.

PACIFIC SLOPE DRAINAGE

The Tualatin River in Oregon, which began flooding at Dilley, Oreg., on the 17th receded within its banks on the 3d. The Pudding River dropped below bankfull stage on the 1st. Stages on all streams of the Willamette Basin receded slowly during February.

FLOOD STAGE DATA

(All dates in February unless otherwise specified)

FEBRUARY 1964

River and station	Flood stage	Above flood stages -dates		Crest *		River and station	Flood stage	Above flood stages -dates		Crest *							
		From-	To-	Stage	Date			From-	To-	Stage	Date						
ATLANTIC SLOPE DRAINAGE																	
Neuse: Neuse, N. C.	14	8	11	#14.6	9	Ocmulgee: Abbeville, Ga.	12	Jan. 13	5	(14.2 (13.9 2	Jan. 17 2						
Smithfield, N. C.	13	8	11	15.4	10			20	29	13.4	25,26						
		17	23	16.75	20	Altamaha: Charlotte, Ga.	15	1	13	17.6	7.8						
Goldsboro, N. C.	14	11	15	#15.0	14			19	29	18.4	29						
		18	27	#17.6	24	Satilla: Atkinson, Ga.	13	1	6	14.6	1						
Kinston, N. C.	14	16	29	#15.9	27			21	29	16.4	29						
Cape Fear: Elizabethtown, N. C.	20	8	9	22.0	8	Waycross, Ga.	16	25	26	16.5	25						
		18	23	27.6	21			29	1/	16.7	29						
Rocky: Norwood, N. C.	15	18	19	#20.1	19	EAST GULF OF MEXICO DRAINAGE											
Lynches: Effingham, S. C.	14	24	26	#14.6	25	Flint: Albany, Ga.	20	20	22	22.6	21						
Pee Dee: Cheraw, S. C.	30	19	20	#32.6	20	Bainbridge, Ga.	25	22	23	25.1	22						
		Peedee, S. C.	19	18 Mar.	4	Apalachicola: Blountstown, Fla.	15	Jan. 9	29	(20.7 (20.3	Jan. 13 23						
Black: Kingstree, S. C.	12	20	25	#12.5	22-23	Pearl: Bogalusa, La.	15	28	28	15.1	28						
Broad: Blair, S. C.	14	18	20	17.9	20	MISSISSIPPI SYSTEM											
North Fork Edisto: Orangeburg, S. C.	8	18	23	# 8.7	20	<u>Ohio Basin</u>											
		28	1/	# 8.1	29	Elk: Fayetteville, Tenn.	659	16	16	659.6	16						
Edisto: Givhans Ferry State Park, N. C.	10 Jan.	15	13	#11.9	Jan. 24	PACIFIC SLOPE DRAINAGE											
		18	1/	#12.4	26	<u>Columbia Basin</u>											
Savannah: Millhaven, Ga.	15 Jan.	15	5	(16.1	Jan. 21	Pudding: Aurora, Oreg.	20	Jan. 19	1	23.5 24.3	Jan. 20 Jan. 26						
			(15.9	2	25												
		19	29	16.2	25	Tualatin: Dilley, Oreg.	12	Jan. 17	2	(13.8 (14.7	Jan. 20 Jan. 25						
Clyo, Ga.	11 Jan.	13	29	(14.8	Jan. 24	Farmington, Oreg.	29	Jan. 19	3	33.2 34.4	Jan. 21 Jan. 27						
			(14.5	5	28												
Ogeechee: Dover, Ga.	7 Jan.	14	8	8.2	Jan. 19												
		22	29	7.5	29												
Eden, Ga.	9	3	7	10.5	3-7												
			7	29	(11.5												
					26												
					29												

* Provisional
Highest stage observed
1/ Continued at end of month

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

FEBRUARY 1964

Date	Sun's zenith distance								
	A.M.				*	P.M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°

TUCSON, ARIZ.

	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Feb.									
1-----	0.88	1.00	1.11	----	----	1.06	0.90	0.76	
2-----	.78	.90	1.05	----	----				
3-----	.82	.95	----	----	----				
4-----	.80	----	----	----	----				
5-----	.87	.96	----	----	----				
6-----	.84	1.01	----	----	----				
7-----	.75	.89	1.03	----	1.24	1.06			
12-----	----	----	----	----					
13-----	.83	.95	----	----					
14-----	.78	.97	----	----					
15-----	.92	1.02	----	----					
17-----	.79	.85	1.05	----					
18-----	.88	----	----	----					
19-----	.89	1.01	1.17	----					
20-----	.56	.90	.95	----	1.24				
21-----	.74	.86	1.00	----					
22-----	.92	.96	----	----					
24-----	.78	.91	1.04	----					
26-----	----	----	----	----					
27-----	.78	.89	----	----					
28-----	.78	.89	----	----					
29-----	.77	----	----	----					
Aver- ages	0.80	0.92	1.04	----	1.24	1.08	0.95	0.82	

ALBUQUERQUE, N. MEX.

	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Feb.									
1-----	0.91	1.01	1.13	1.21	1.37	1.28	1.09	0.96	0.85
2-----	.91	1.03	1.14	1.24	1.29	1.34	1.09	.95	.86
5-----	.71	.83	1.01	1.27	1.34	1.29	1.09		
6-----	----	----	----	----	----	----			
7-----	----	1.11	1.31	1.32	1.34	1.19	1.07	.94	
8-----	.87	1.01	1.13	1.28	1.35	1.30	1.16	1.04	.93
9-----	.89	1.05	1.18	1.32	1.39	1.29	1.11	.99	.87
10-----	.89	1.02	1.12	1.28	1.36	1.29	1.12	1.01	.90
13-----	.84	.97	1.11	----	1.37	1.22	1.08	.96	.87
15-----	.95	1.06	1.19	1.34	1.43	1.32	1.16	1.03	.92
17-----	.89	.99	1.15	1.29	1.39	1.08	.96	.82	
18-----	.83	.96	1.08	1.25	1.37	1.28	1.08	.97	.84
19-----	.88	.99	1.11	1.29	1.37	1.26	1.09	.97	
21-----	.85	.97	1.10	1.26	1.35	1.23	1.07	.94	.81
22-----	.85	.95	1.04	1.22	1.33	1.21	1.02	.89	.75
24-----	.81	.90	1.06	1.24	1.36	1.25	1.07	.94	.80
25-----	.77	.88	1.02	1.19	----	----	.91	.80	
26-----	----	----	----	----	1.18	.98	.88	.75	
27-----	.86	.96	1.12	1.30	1.39	1.27	1.10	.98	.86
28-----	.94	1.01	1.17	1.33	1.43	1.22	1.09	.96	.83
Aver- ages	0.86	0.98	1.11	1.27	1.37	1.26	1.09	0.96	0.84

BLUE HILL OBS., MASS.

	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Feb.									
3-----	0.90	1.01	1.16	1.30	1.33	1.32	1.17	1.04	0.91
4-----	----	----	----	1.20	1.00	.82	.74		
9-----	.79	.89	1.04	1.18	1.32	1.30	1.15	1.04	.93
12-----	----	1.05	1.05	1.28	1.35	1.30	1.10	.98	.87
13-----	.93	1.10	1.16	1.30	----	----	----	----	
15-----	.87	.98	1.10	1.29	1.36	1.28	----	----	
17-----	.90	1.03	1.17	1.34	1.42	1.35	1.16	.96	.86
18-----	.86	.95	1.11	1.30	----	----	----	----	
20-----	----	----	----	1.33	1.27	1.06	.87	.77	
22-----	.89	1.01	1.15	1.30	1.40	1.32	1.13	.99	.87
23-----	.93	1.05	1.17	1.35	1.41	1.32	1.12	1.00	.89
25-----	.93	1.03	1.15	1.29	----	----	----	----	
27-----	.68	.78	.94	1.22	1.42	1.30	1.16	1.01	.90
28-----	.77	.88	1.03	1.21	1.32	----	----	----	
29-----	.69	.81	.99	1.23	1.40	1.28	1.15	.98	.86
Aver- ages	0.85	0.96	1.09	1.28	1.37	1.29	1.12	0.97	0.86

HS Slight haze

M Moderate haze

HI Intense haze

DM Moderate dust

S Slight haze - indeterminable

M Moderate haze - indeterminable

* Values corresponding to true solar noon.

No observation due to cloudiness

in the February 1957 issue, Vol. 8 No. 2 page 63 of this publication.

SOLAR RADIATION DATA

Daily totals and monthly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

FEBRUARY 1964

Station	Day of month																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
OKLAHOMA CITY OKLA.	354	339	247	28	39	203	403	395	342	381	383	31	375	345	98	436	146	372	405	353	419	437	370	429	86	464	317	477	346	311	
PHOENIX ARIZONA	383	388	396	392	397	415	416	394	413	421	104	404	448	462	465	314	469	469	474	--	457	467	426	478	412	469	494	488	319	416	
PORTLAND MAINE	50	199	301	276	207	166	86	83	334	333	--	244	304	338	51	370	348	110	282	178	270	386	322	378	278	273	320	414	255		
RAPID CITY S.DAK.	133	201	269	232	195	283	85	213	124	163	171	264	298	207	322	180	234	287	184	263	395	246	308	191	328	358	352	365	246		
RIVERSIDE CALIFORNIA	407	428	448	432	410	478	454	434	459	473	344	499	456	490	462	478	488	505	512	535	522	500	538	508	182	539	527	499	487	465	
SAINT CLOUD MINN.	234	230	261	232	269	196	288	299	187	311	243	171	319	146	360	311	317	285	278	343	363	131	378	216	370	399	232	381	362*	280*	
SALT LAKE CITY UTAH	181	360	347	355	174	371	364	355	323	355	102	408	140	398	208	291	217	342	135	424	408	363	418	267	369	396	451	457	423	324	
SAN ANTONIO TEXAS	235	84	46	364	432	386	446	454	479	475	282	103	370	146	531	424	164	531	525	179	276	556	530	64	360	99	538	543	217	339	
SANTA MARIA CALIF.	363	363	377	374	382	369	397	389	404	393	392	415	412	425	228	432	430	437	437	433	435	442	449	448	440	463	471	217	468	403	
SAULT STE MARIE MICH.	59	297	--	209	294	89	136	268	306	293	334	46	205	301	227	359	124	214	318	374	389	379	231	409	--	326	378	389	395	272	
SEATTLE TACOMA WASH.	116	132	196	155	162	223	205	122	130	116	202	60	226	85	67	63	63	125	288	283	257	302	233	319	318	284	336	132	62	181	
SEATTLE WASH. UNIV.	146	135	174	118	126	198	185	122	136	117	167	54	135	74	56	94	56	94	28	263	228	266	259	287	300	23	311	176	46	151	
SHREVEPORT LOUISIANA	--	384	276	112	201	324	378	444	435	425	448	190	59	205	422	452	--	386	413	465	344	507	504	352	--	170	74	538	246	337	
SPOKANE WASHINGTON	214	149	225	227	270	183	282	212	214	199	275	191	248	220	113	137	295	177	346	300	341	343	300	334	361	377	386	233	268	256	
STATE COLLEGE PENN.	53	126	337	309	284	21	97	224	282	270	372	322	96	283	259	210	377	118	129	263	399	368	421	326	330	174	439	163	455	259	
STERLING VIRGINIA	115	223	313	314	296	21	142	314	285	--	171	355	128	360	128	235	339	35	196	388	392	391	430	398	--	339	392	148*	454	270*	
STILLWATER OKLAHOMA	364	343	277	50	42	201	382	363	335	366	358	14	386	339	98	418	228	357	344	376	413	425	404	355	48	454	355	466	347	307	
SWAN ISLAND W.I.	559	562	566	547	552	522	575	425	290	546	487	590	569	599	574	595	477	613	575	272	545	526	579	607	604	628	615	--	487	539	
TAMPA FLORIDA	333	429	86	56	158	433	190	440	500	402	271	469	364	94	352	489	391	68	431	537	538	108	536	514	316	528	125	188	559	341	
TUCSON ARIZONA	394	387	408	407	414	428	420	404	374	401	71	329	429	458	--	--	--	464	436	435	399	480	422	481	409	433	464	464	296	404	

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

Values with an asterisk are interpolated.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Huntley, Mont.

FEBRUARY 1964

Date,	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys, . . .	*	*	*	*4	*	*	-36	-30	50	-10	22	-3	29	-1	32	-20	76	-36	28	47	-42	82	-98	-100	-54	-38	19	-11	---			

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of $\frac{\text{sq}}{\text{deg}}$. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

* Instrument malfunction - data doubtful. Data reliable from 8th.

These data are of an experimental nature and are published as received from the Huntley Exp. Station. The instrument with which they were measured has not been checked by the Weather Bureau.

TOTAL OZONE DATA

These provisional ozone data are obtained from measurements made with a Dobson ozone spectrophotometer, and are applicable approximately to local apparent noon. The data are presented in the code $\lambda s \varrho \varrho \varrho$ defined in the August 1962 WMO circular entitled "PUBLICATION OF DATA FOR METEOROLOGICAL RESEARCH, WORLD OZONE DATA."

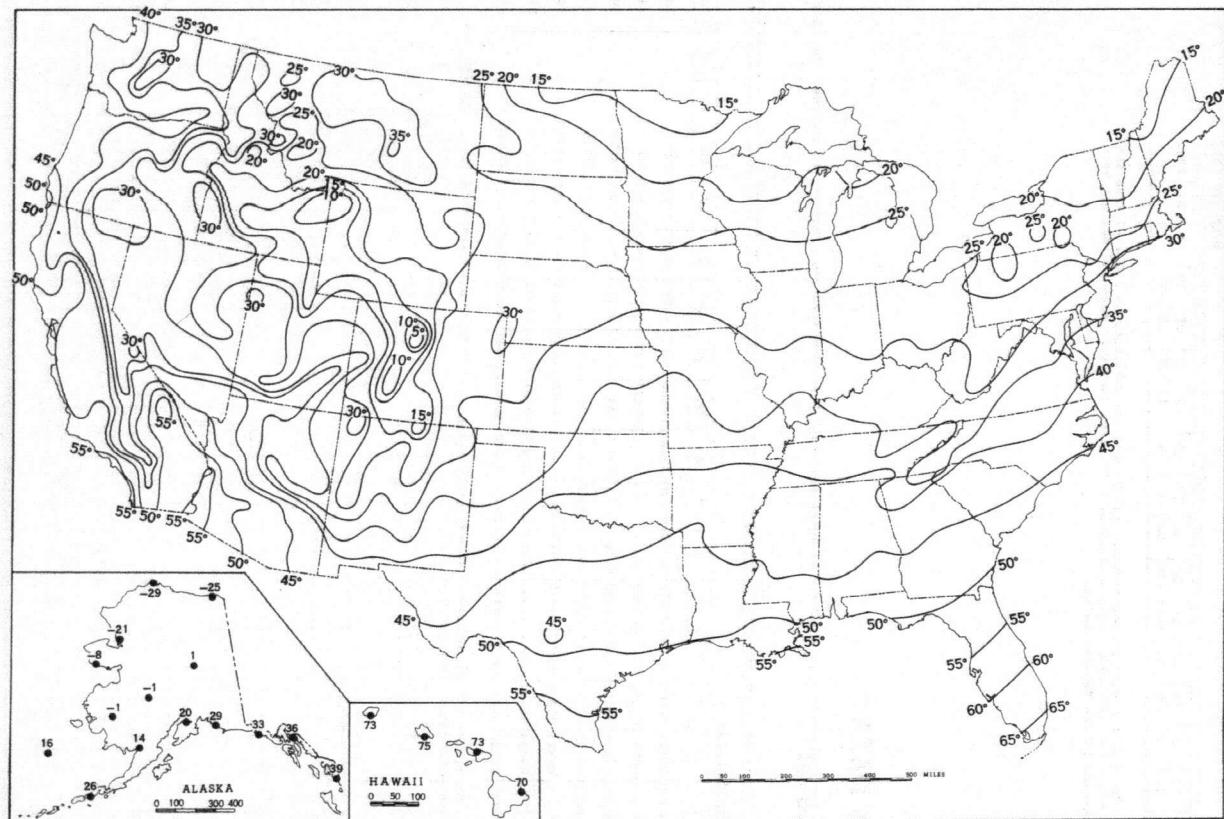
Units: Milli-atmo-cms.

Station	Day of month																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Albuquerque, N. Mex.	00283	00328	-----	-----	-----	-----	-----	-----	-----	03276	-----	00279	02371	00295	06344	00281	00360	00329	05372	00369	00326	05355	00325	06315	05347	00342	00336	06375	330		
Bedford, Mass.	-----	00428	00360	00378	05341	00383	-----	-----	00452	00412	00361	00322	00367	00335	-----	00360	00365	-----	00369	-----	-----	00433	00396	00406	00424	00371	-----	382			
Bismarck, N. Dak.	00383	00423	00343	00339	04378	00479	35355	35371	00450	00348	00346	36420	00389	00448	00381	00399	04389	06428	00392	04389	00366	-----	00412	00416	00462	00411	00395	00393	04436	398	
Caribou, Maine	35346	-----	-----	-----	-----	-----	05440	00418	00410	00454	00371	00348	32385	00456	04412	00422	00425	00393	06424	06414	05448	00431	00433	00407	-----	00468	00427	00439	417		
Green Bay, Wis.	04381	05400	06417	04364	00358	02407	06503	00399	00405	00440	00354	04358	00367	00398	06432	-----	00419	00406	05407	00412	00462	00431	-----	00398	00449	00434	00418	00435	00380	409	
Nashville, Tenn.	00317	00303	00322	00347	04358	04388	05408	00338	00395	04455	00357	04287	-----	00302	-----	05350	00325	06401	-----	-----	06407	00403	00402	00351	00349	05369	00359	00414	00339	362	
Sterling, Va.	05324	02335	00359	00408	03345	06492	03369	00386	00376	06433	-----	00327	05304	00310	05317	00357	00333	-----	06400	00383	00410	00409	00398	00402	04361	00339	00353	04355	00361	368	

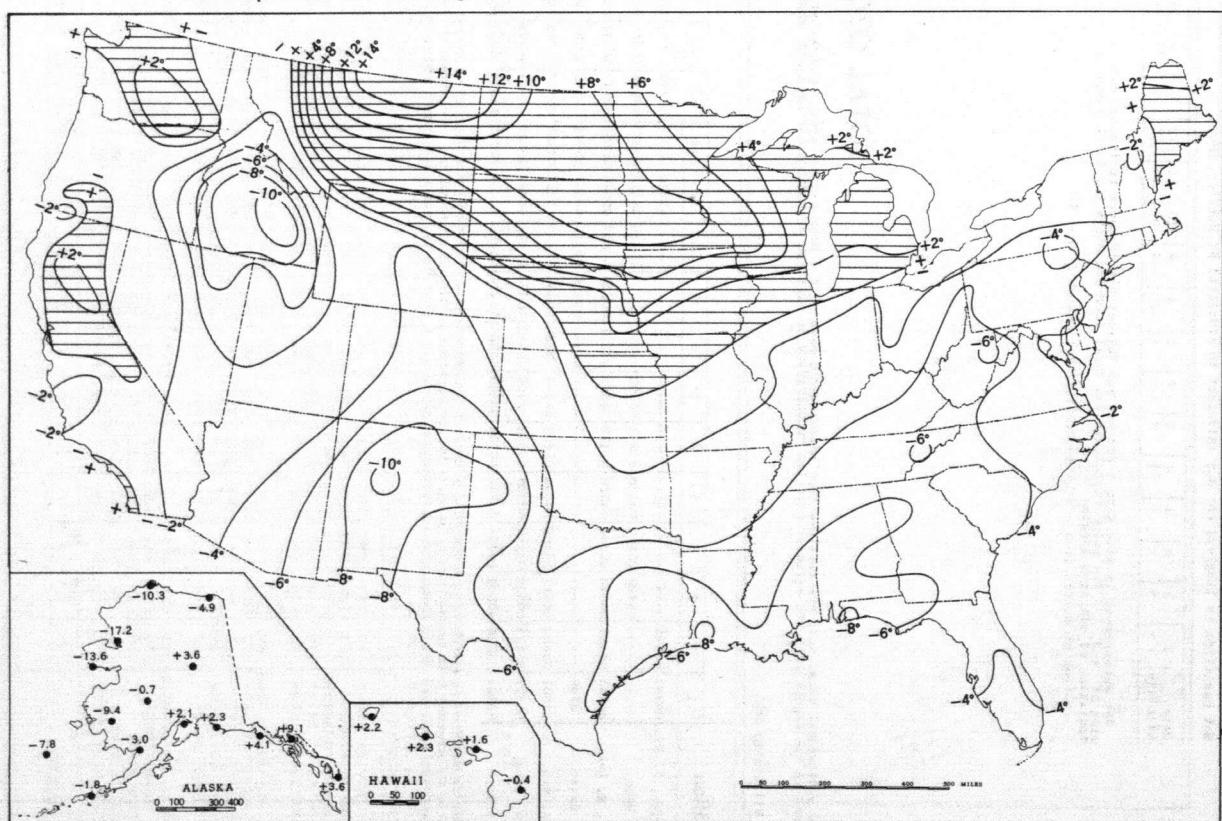
The spectrophotometer measures the total amount of ozone in the atmosphere, i. e., the amount contained in a vertical column of air extending from ground level to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column (coded $\varrho \varrho \varrho$) is expressed in terms of a thickness of a layer it would occupy at standard temper-

ature and pressure, e. g., 350 milli-atmo-cm ozone implies an ozone layer 0.350 centimeter thick. The code λs designates the type of measurement made.

Chart I. A. Average Temperature ($^{\circ}$ F.) at Surface, February 1964.



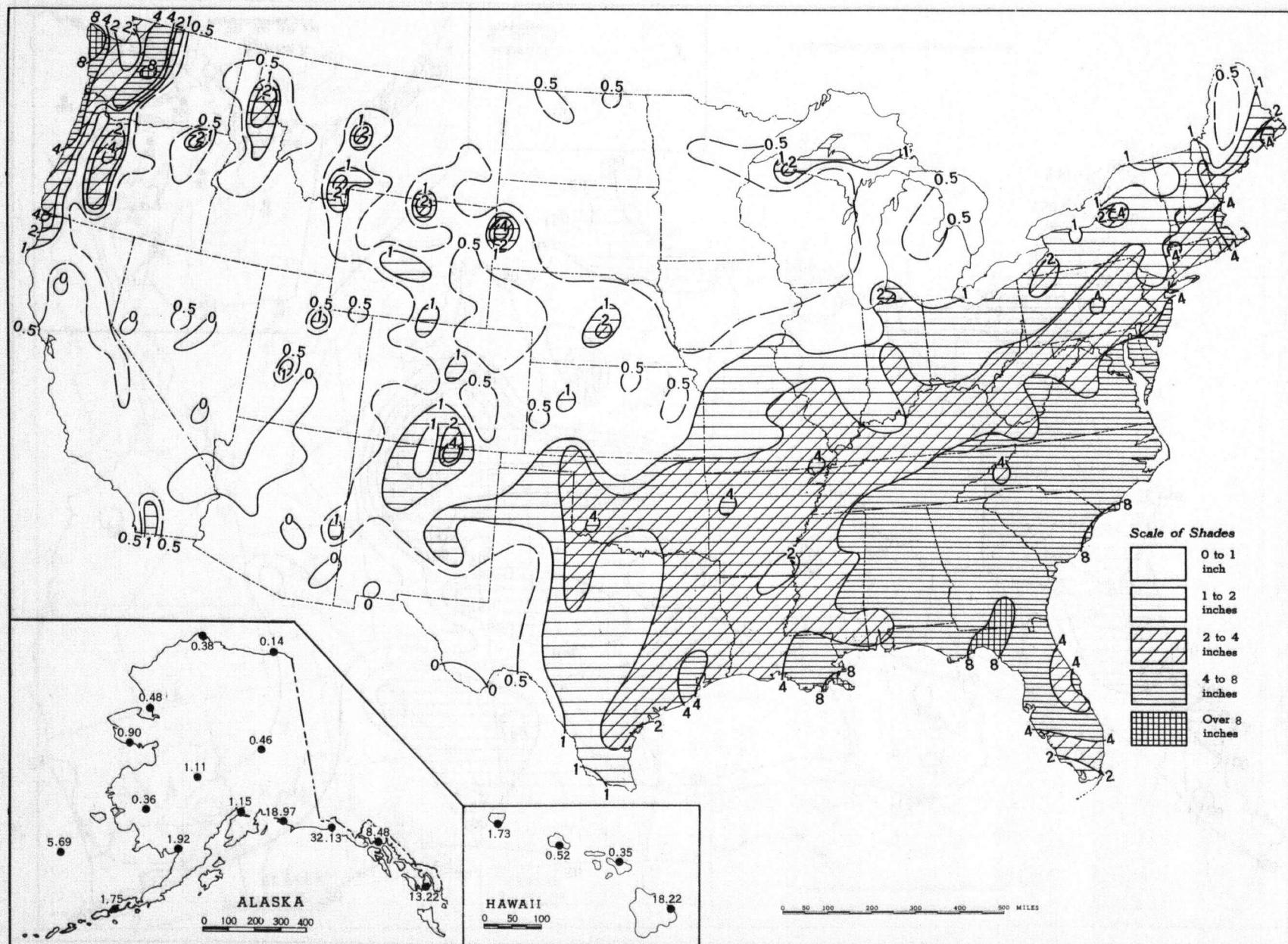
B. Departure of Average Temperature from Normal ($^{\circ}$ F.), February 1964.



A. Based on reports from over 870 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

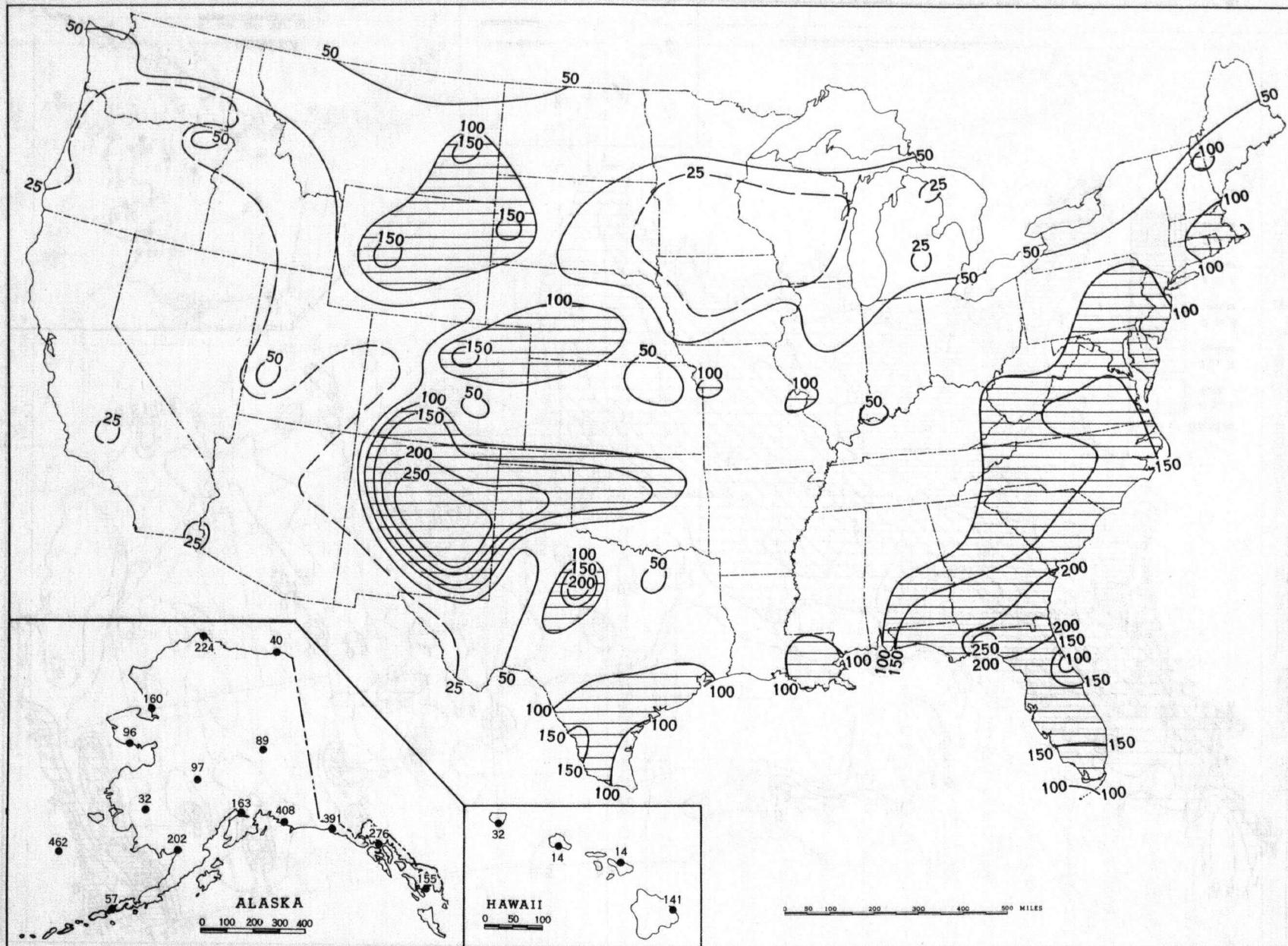
B. Departures from normal are based on the 30-yr. normals (1931-60) for first-order Weather Bureau stations.

Chart II. Total Precipitation (Inches), February 1964.



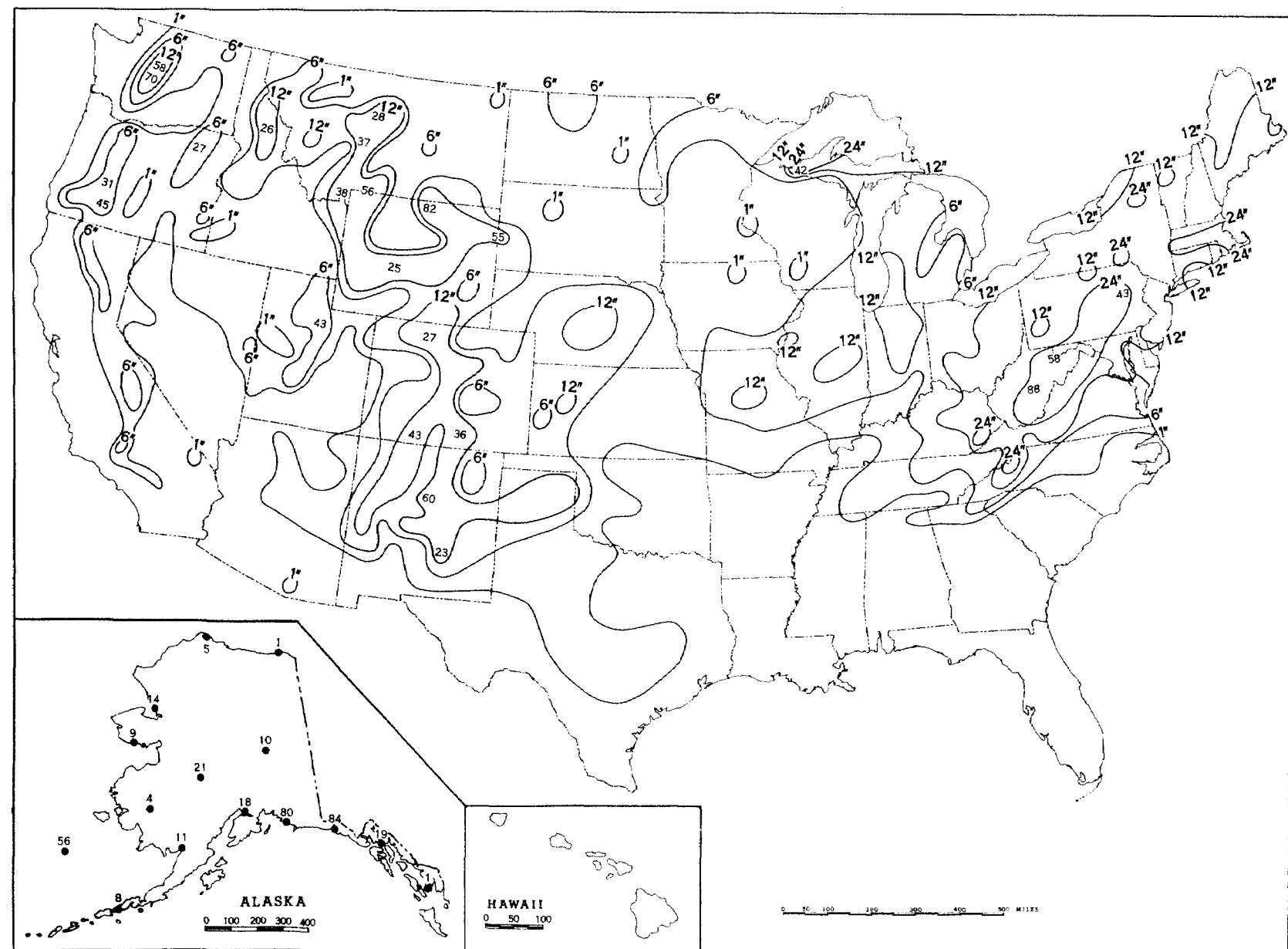
Based on daily precipitation records at about 870 Weather Bureau and cooperative stations.

Chart III. Percentage of Normal Precipitation, February 1964.



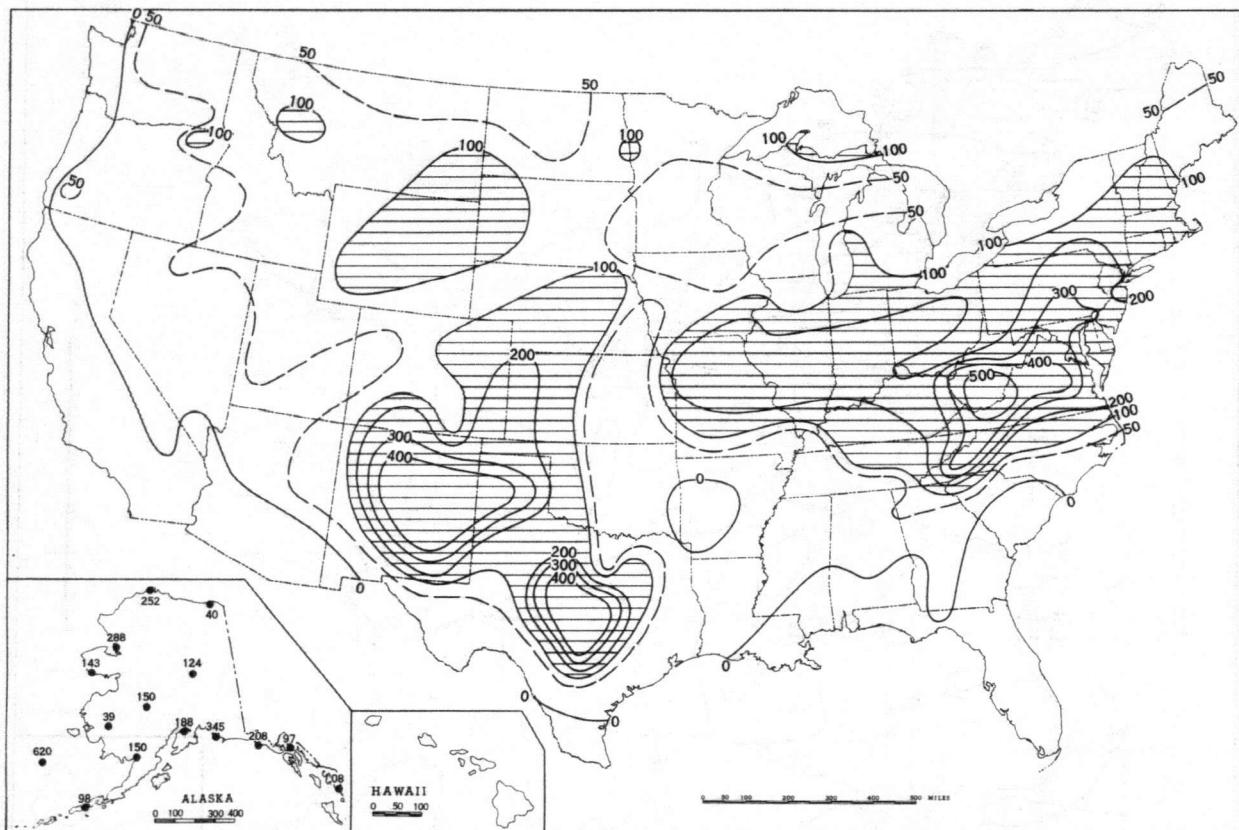
Normal monthly precipitation amounts are computed from 30-yr. normals (1931-60) for first-order Weather Bureau stations.

Chart IV. Total Snowfall (Inches), February 1964.

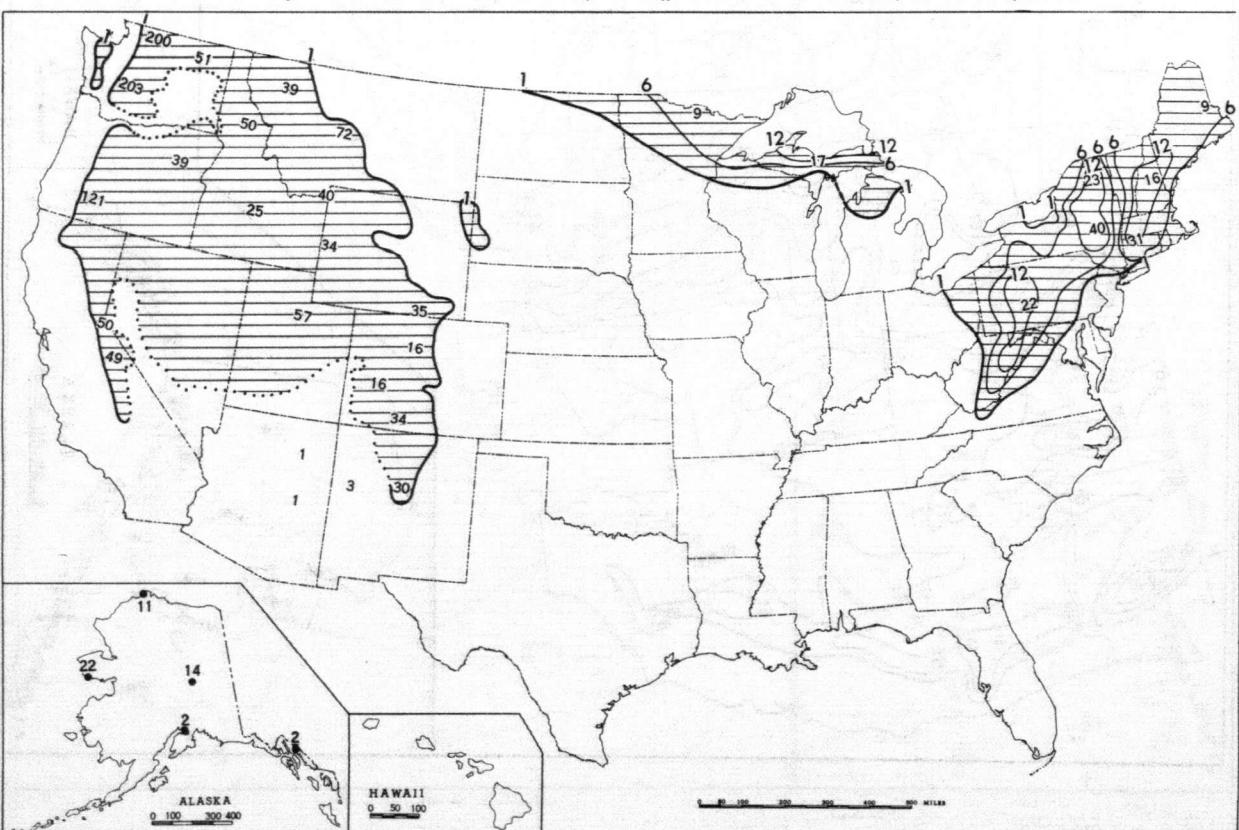


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Mean Monthly Snowfall, February 1964.



B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., March 2, 1964.

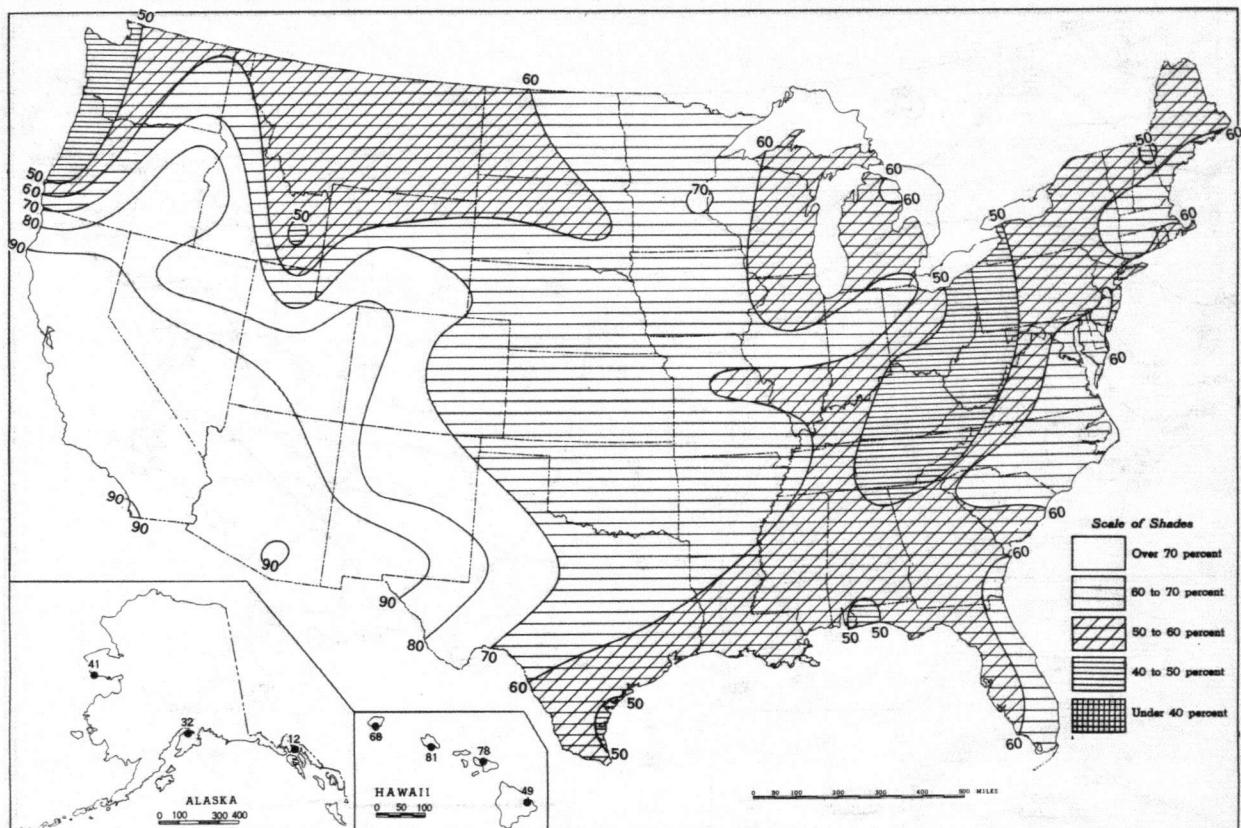


A. Amount of mean monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.

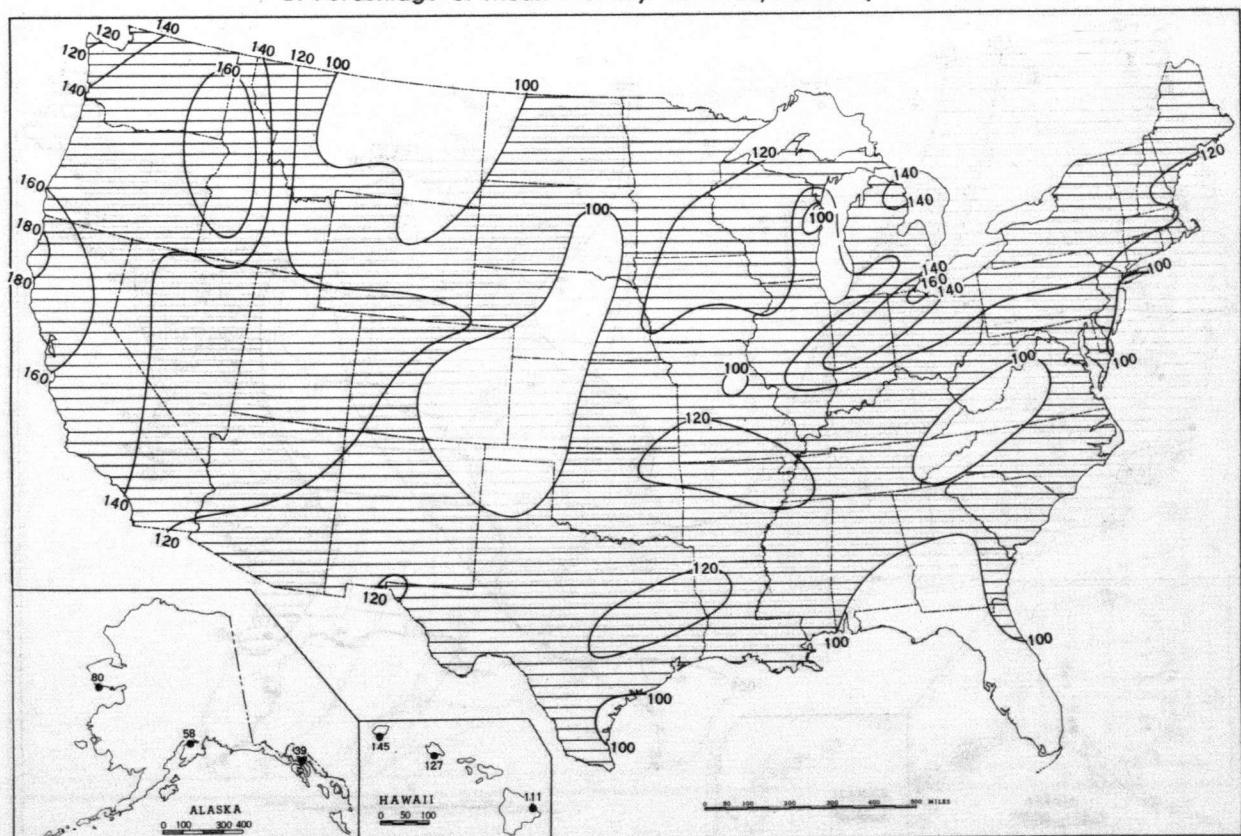
B. Shows depth currently on ground at 7:00 a.m. E.S.T., of the Monday nearest the end of the month.

It is based on reports from Weather Bureau and cooperative stations.

Chart VI. A. Percentage of Possible Sunshine, February 1964.

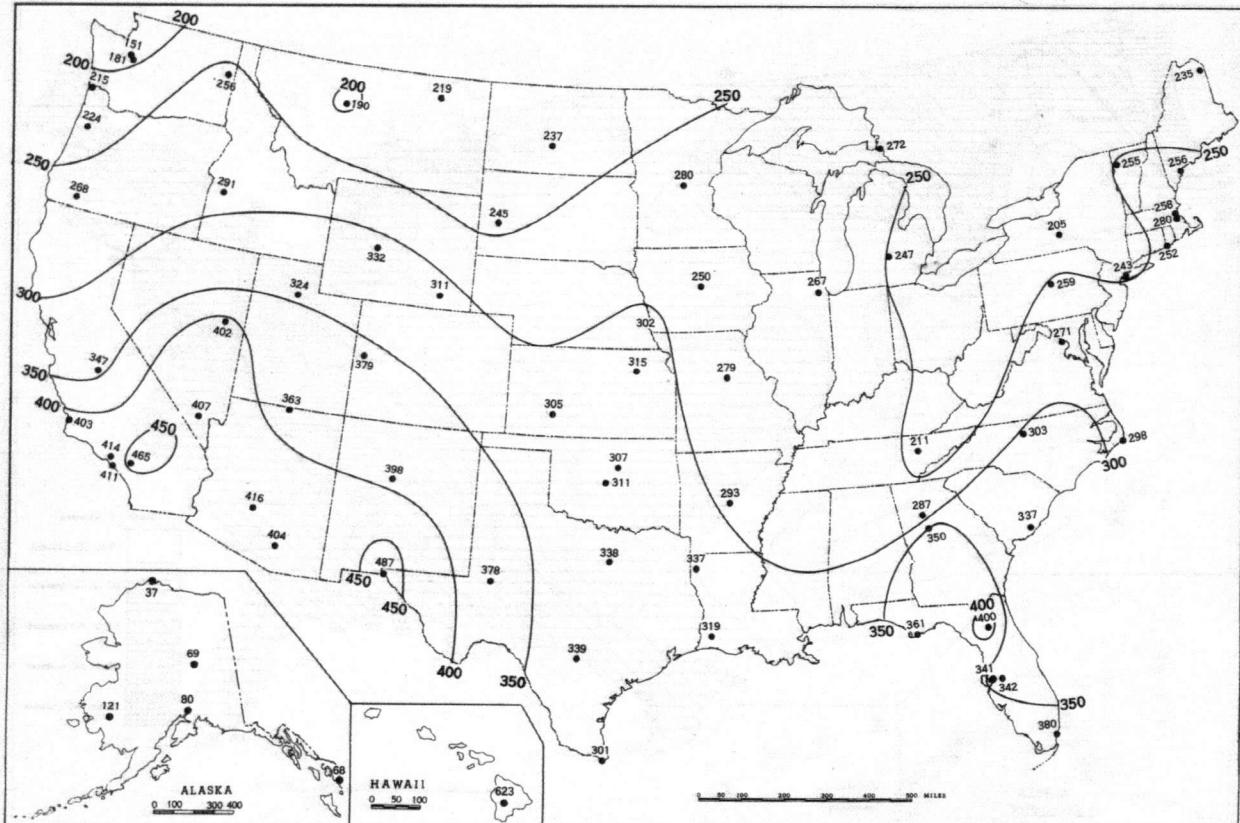


B. Percentage of Mean Monthly Sunshine, February 1964.

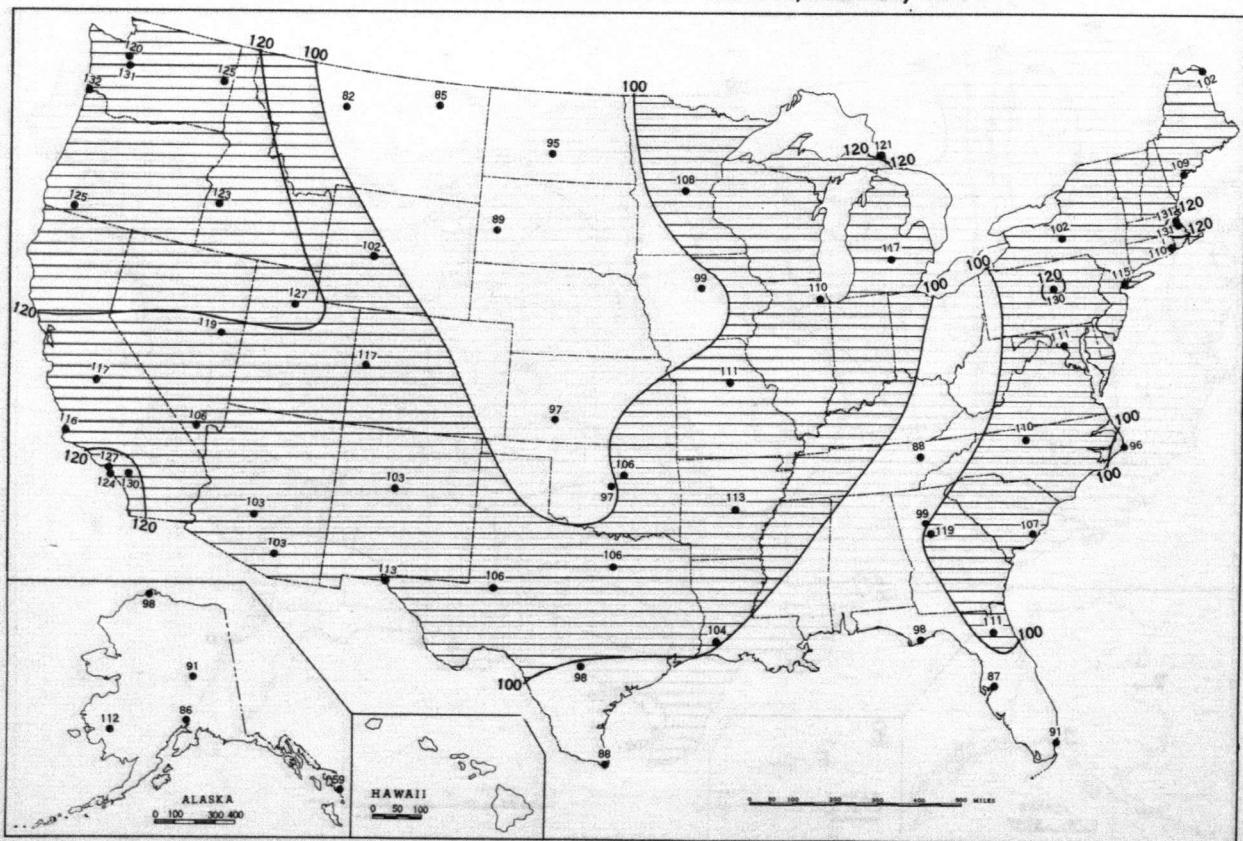


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Means are computed for stations having at least 10 years of record.

Chart VII. A. Average Daily Values of Solar Radiation, Langleys, February 1964.

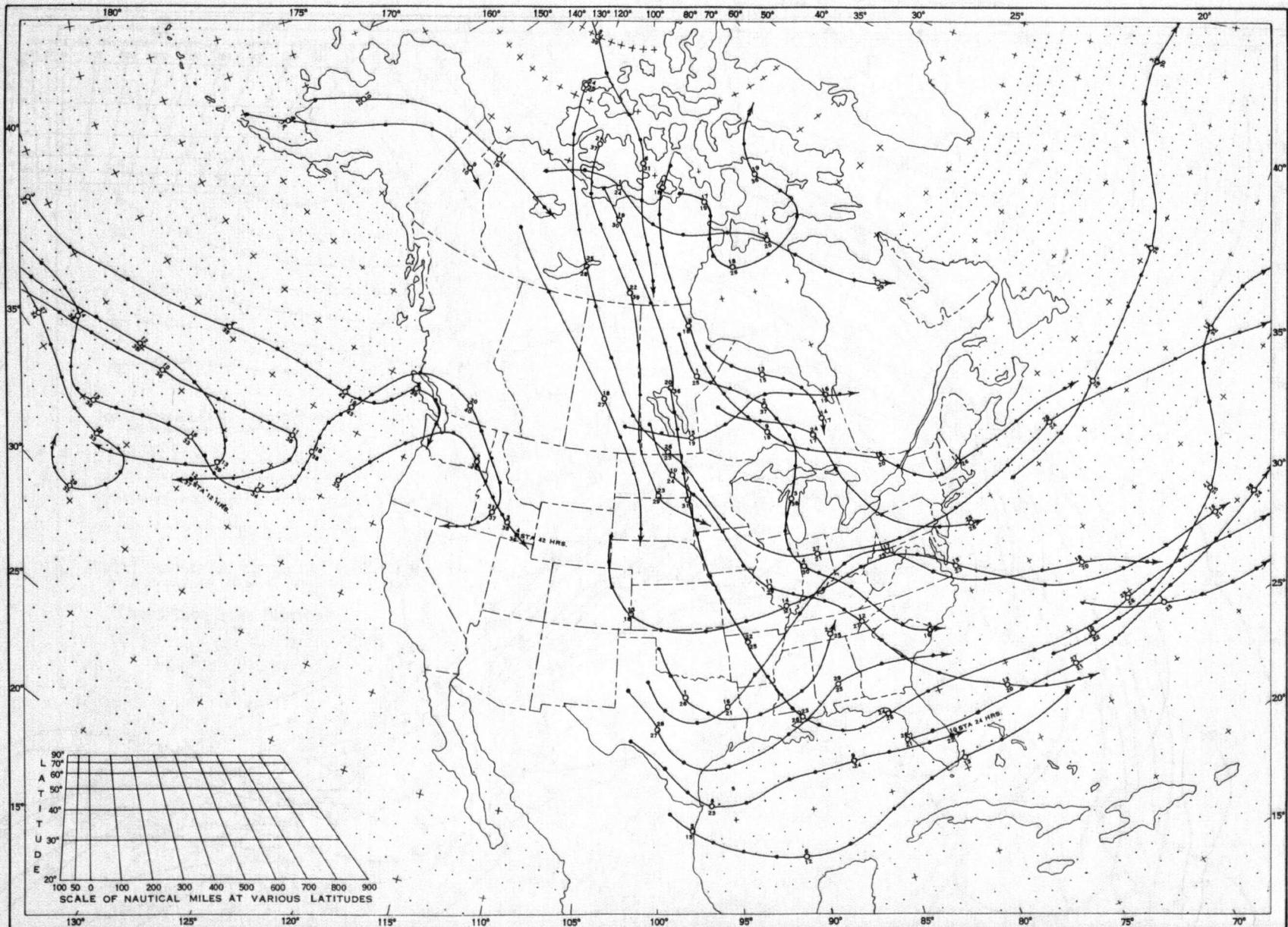


B. Percentage of Mean Daily Solar Radiation, February 1964.



- A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.⁻²) and recorded in International Pyrheliometer Scale of 1956. B. Percentage of the mean based on at least 5 years of record during the period 1950-60, and corrected to the International Pyrheliometer Scale of 1956.

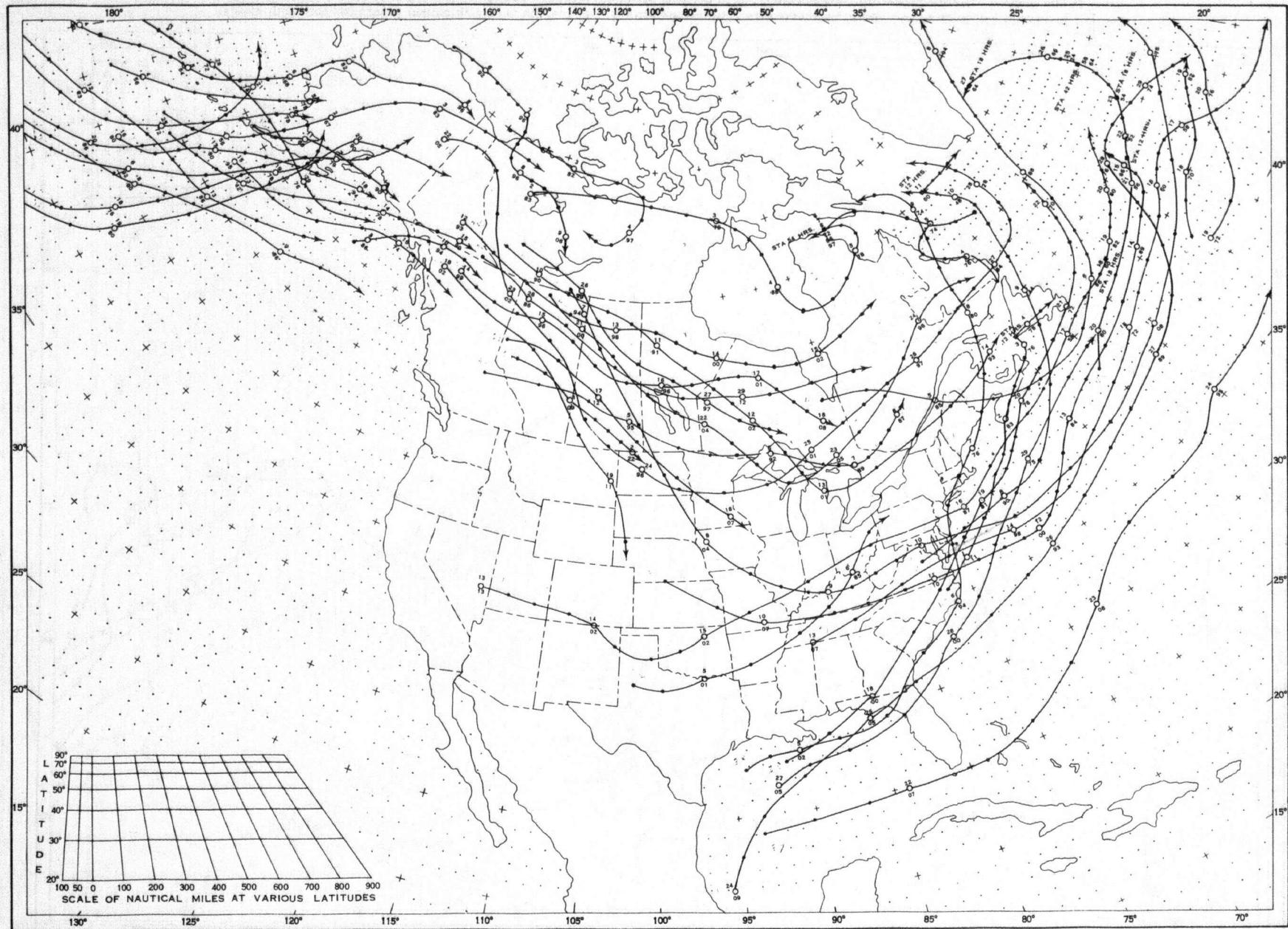
Chart VIII. Tracks of Centers of Anticyclones at Sea Level, February 1964.



Circle indicates position of center at 7:00 a.m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar.

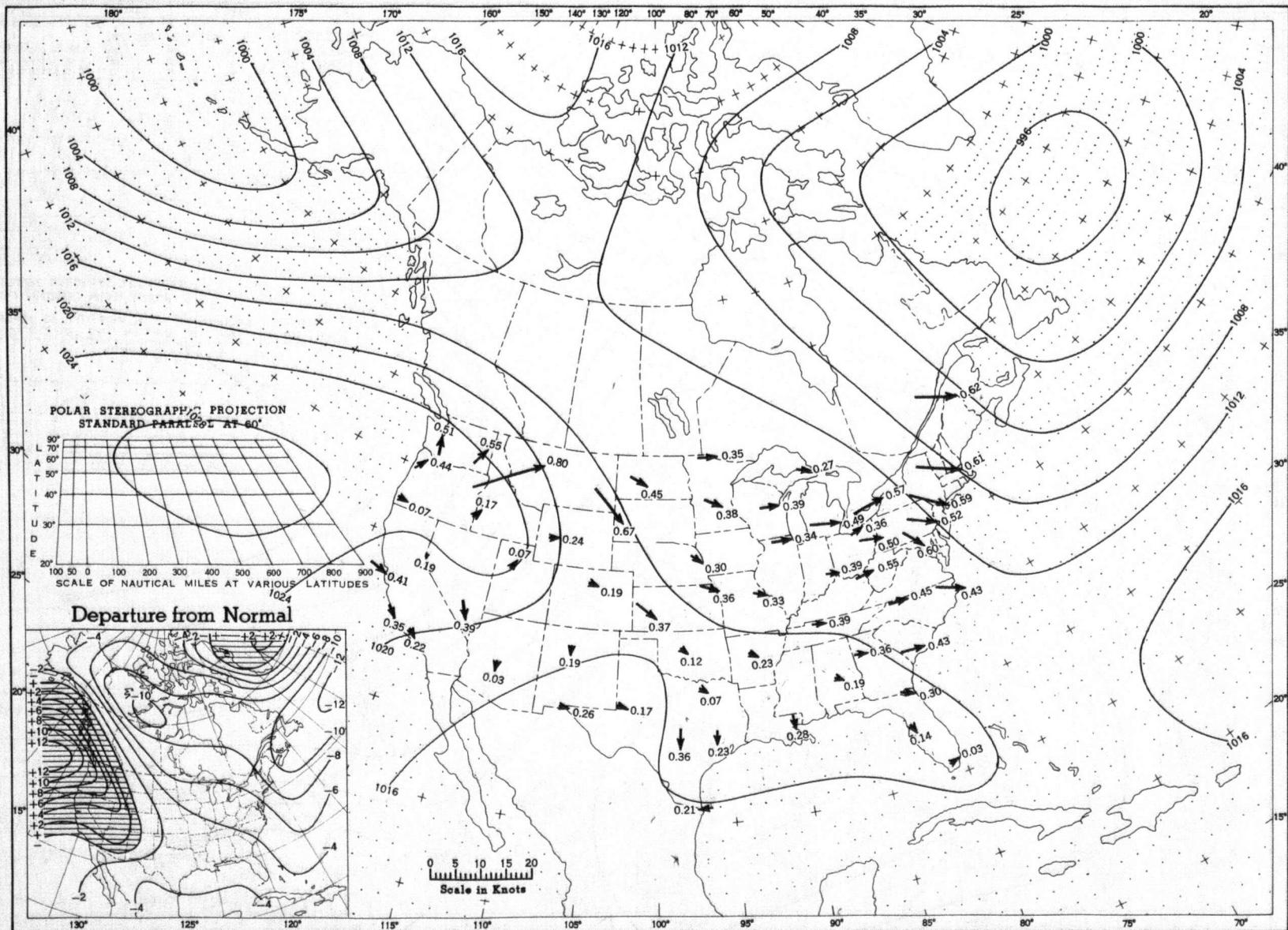
Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart IX. Tracks of Centers of Cyclones at Sea Level, February 1964.



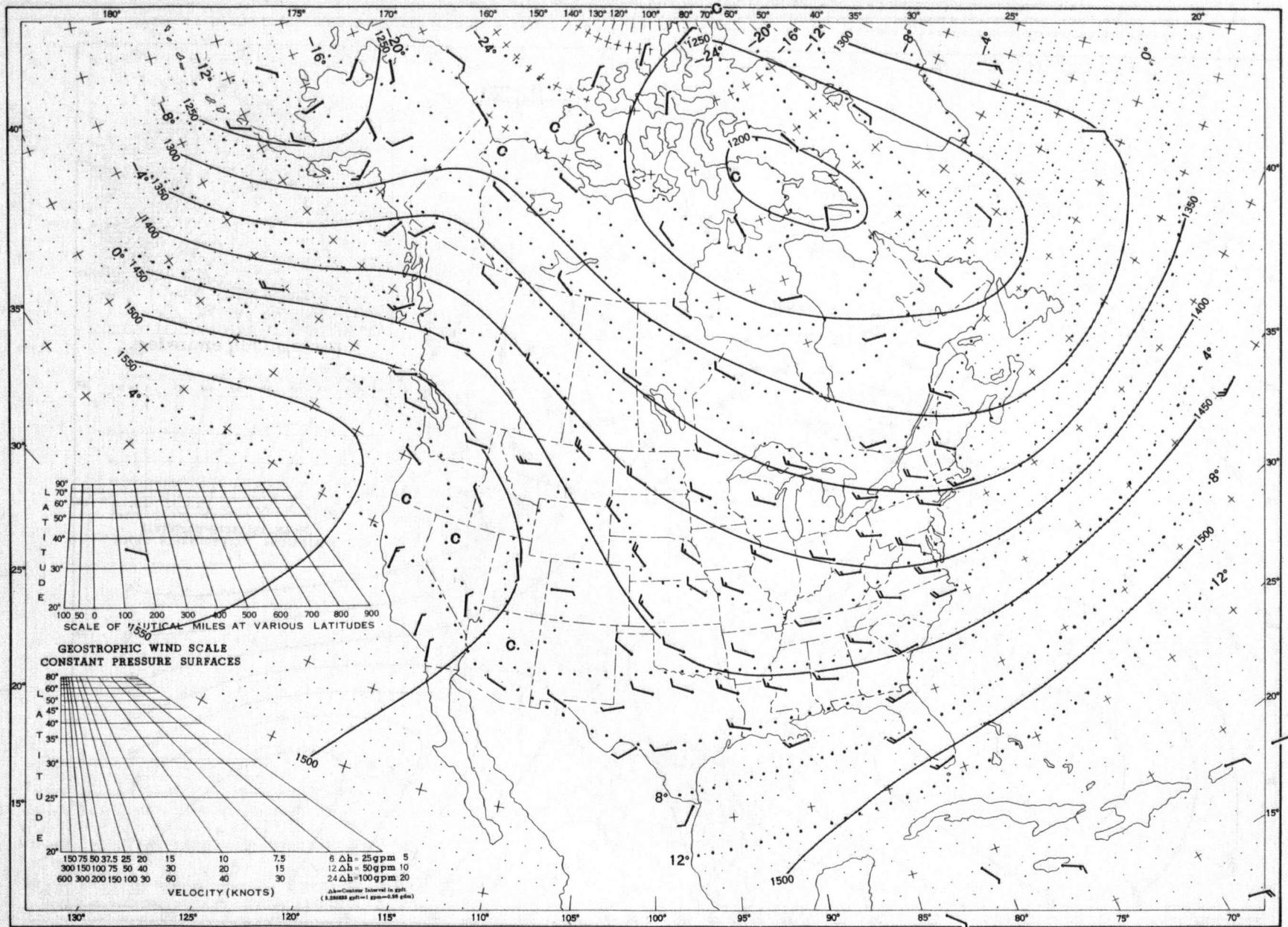
Circle indicates position of center at 7:00 a.m. E. S. T. See Chart VIII for explanation of symbols.

Chart X. Average Sea Level Pressure (mb.) and Resultant Surface Wind, February 1964. Inset: Departure of Average Pressure (mb.) from Normal, February 1964.



Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E.S.T. readings. Resultant wind directions and speeds are shown by arrows. Constancy ratios (resultant speed + average speed) are shown to two decimal places. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XI. 850-mb. Surface, 1200 GMT, February 1964. Average Height and Temperature, and Resultant Winds.



Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XII. 700-mb. Surface, 1200 GMT, February 1964. Average Height and Temperature, and Resultant Winds.

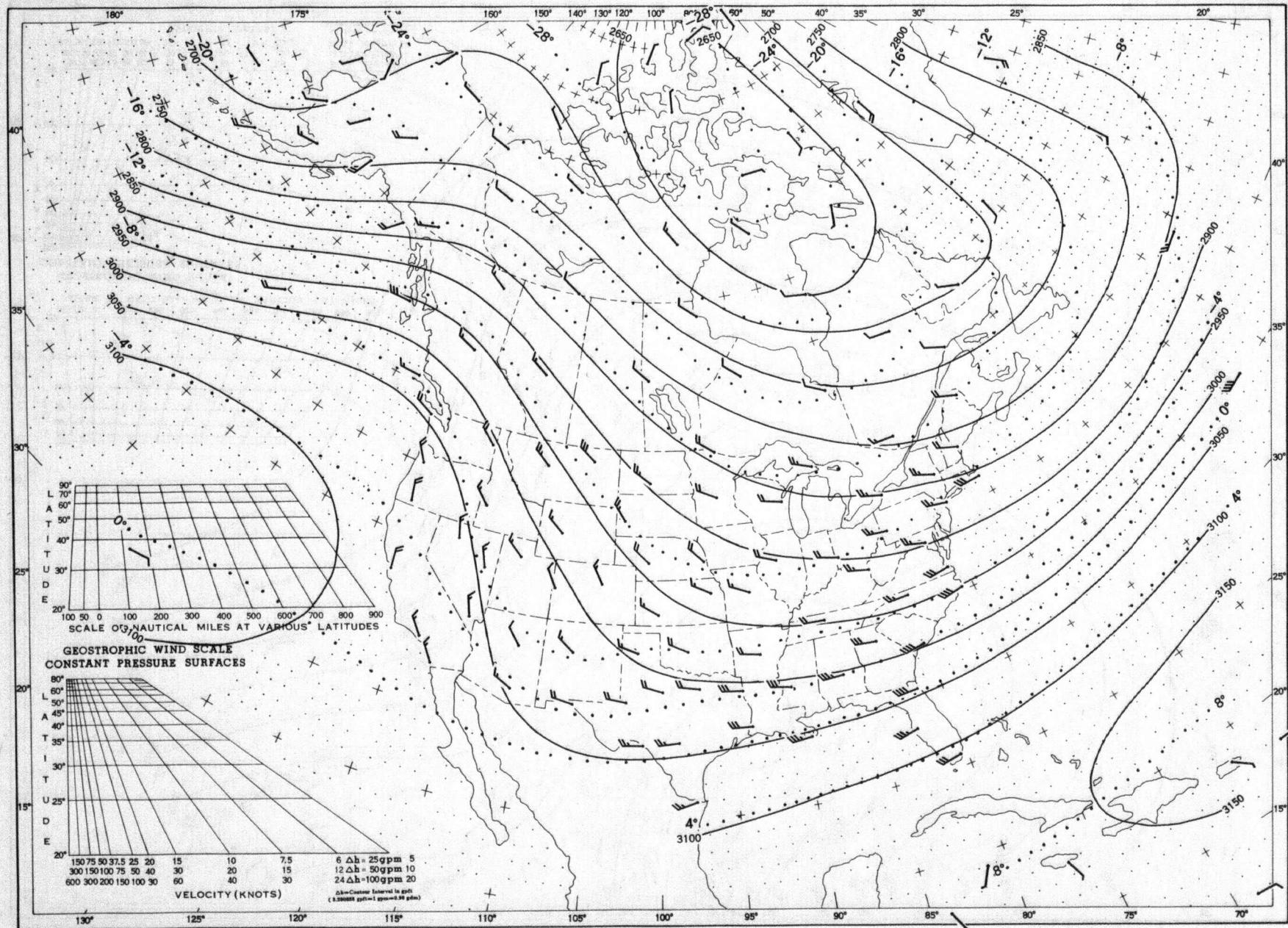
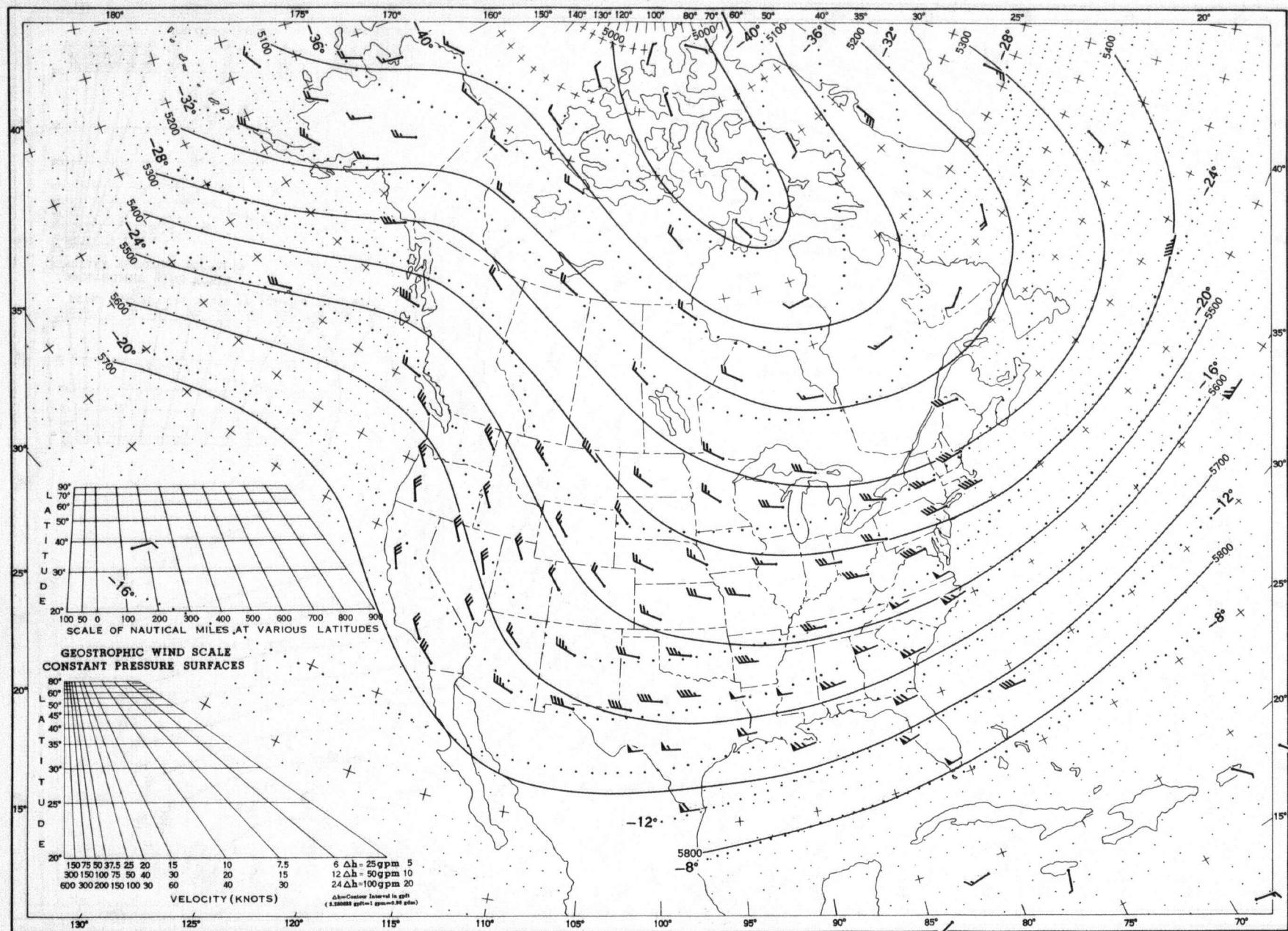
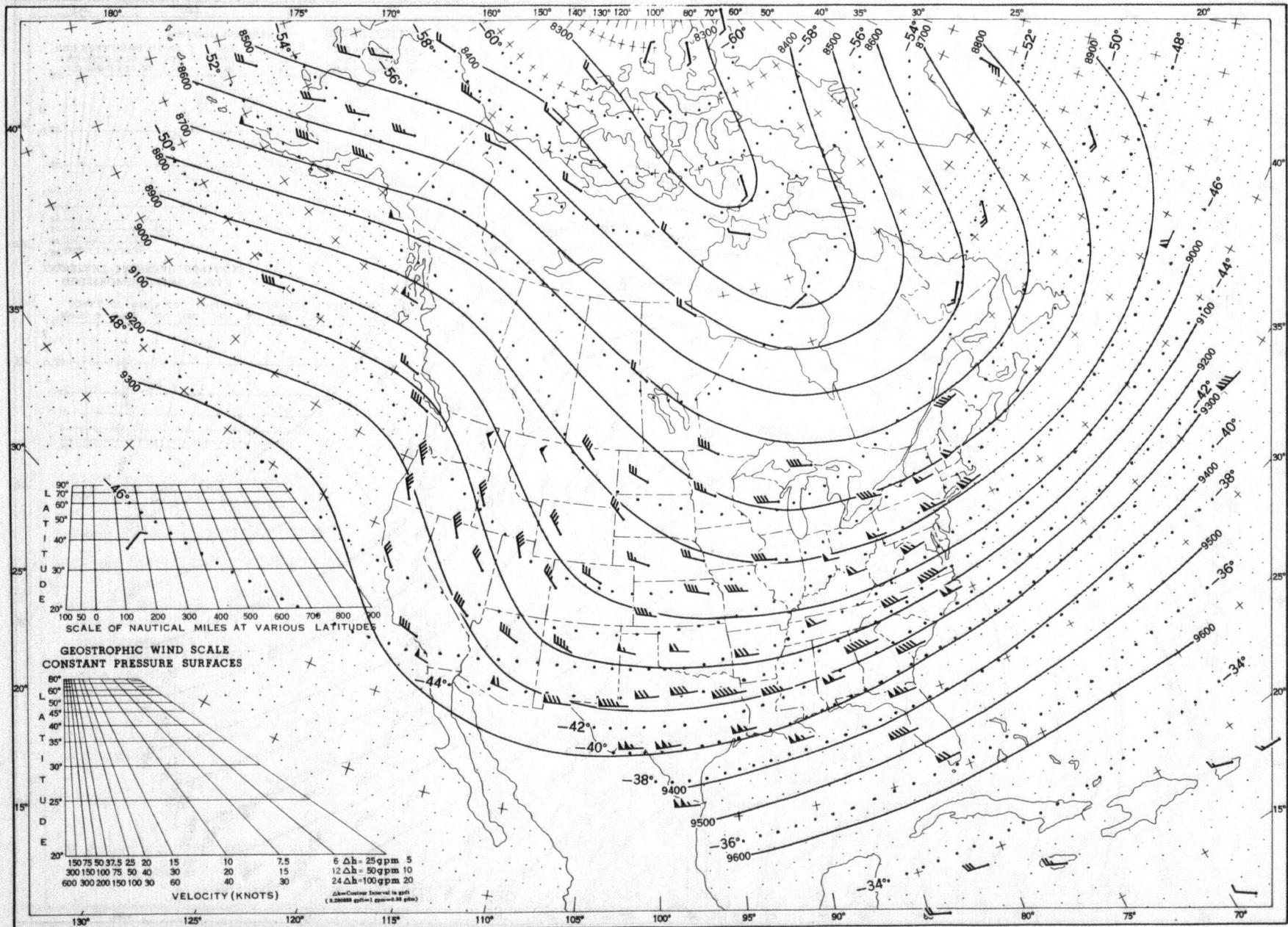


Chart XIII. 500-mb. Surface, 1200 GMT, February 1964. Average Height and Temperature, and Resultant Winds.



See Chart XI for explanation of map.

Chart XIV. 300-mb. Surface, 1200 GMT, February 1964. Average Height and Temperature, and Resultant Winds.



See Chart XI for explanation of map.

Chart XV. 200-mb. Surface, 1200 GMT, February 1964. Average Height and Temperature, and Resultant Winds.

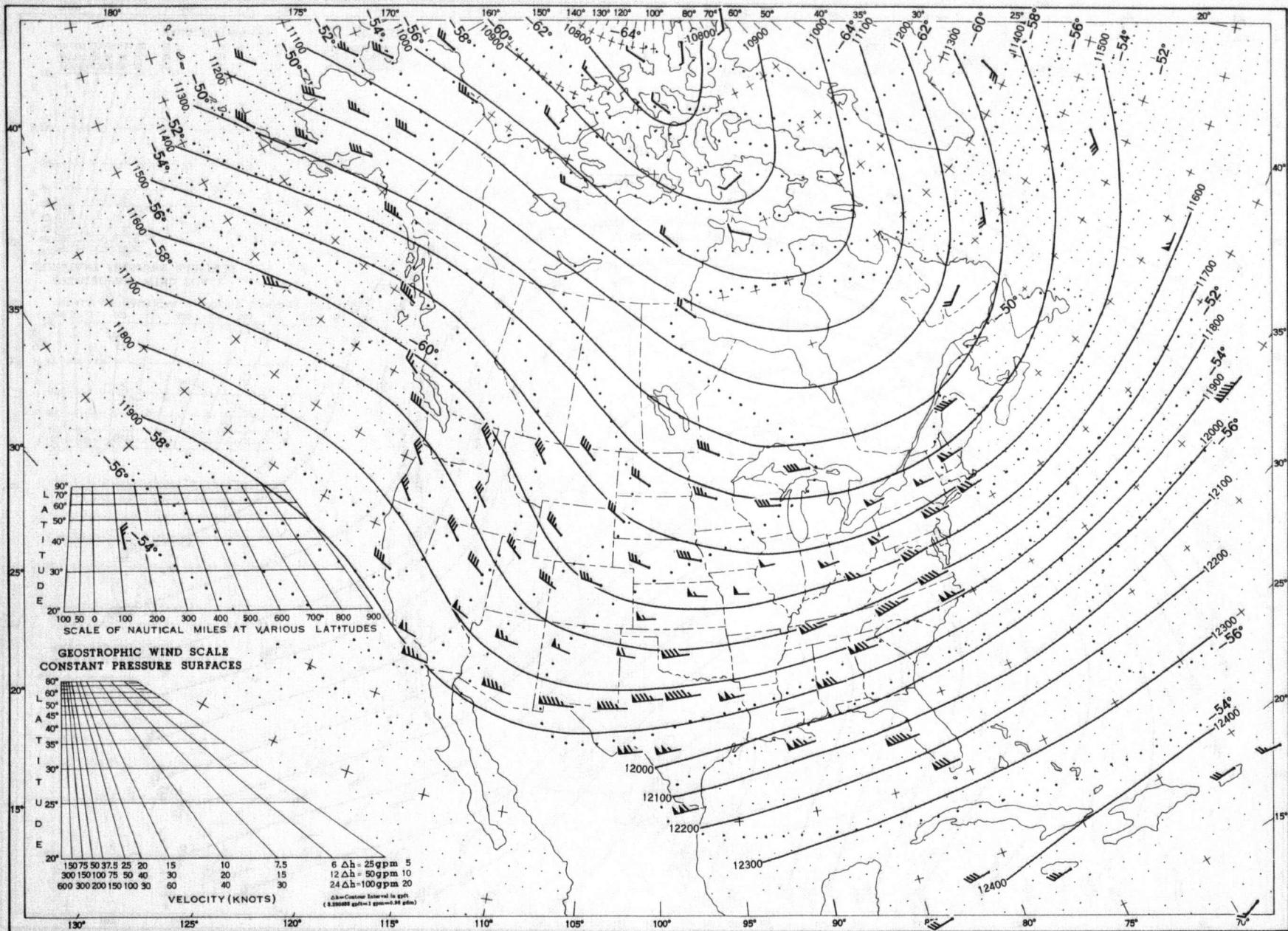
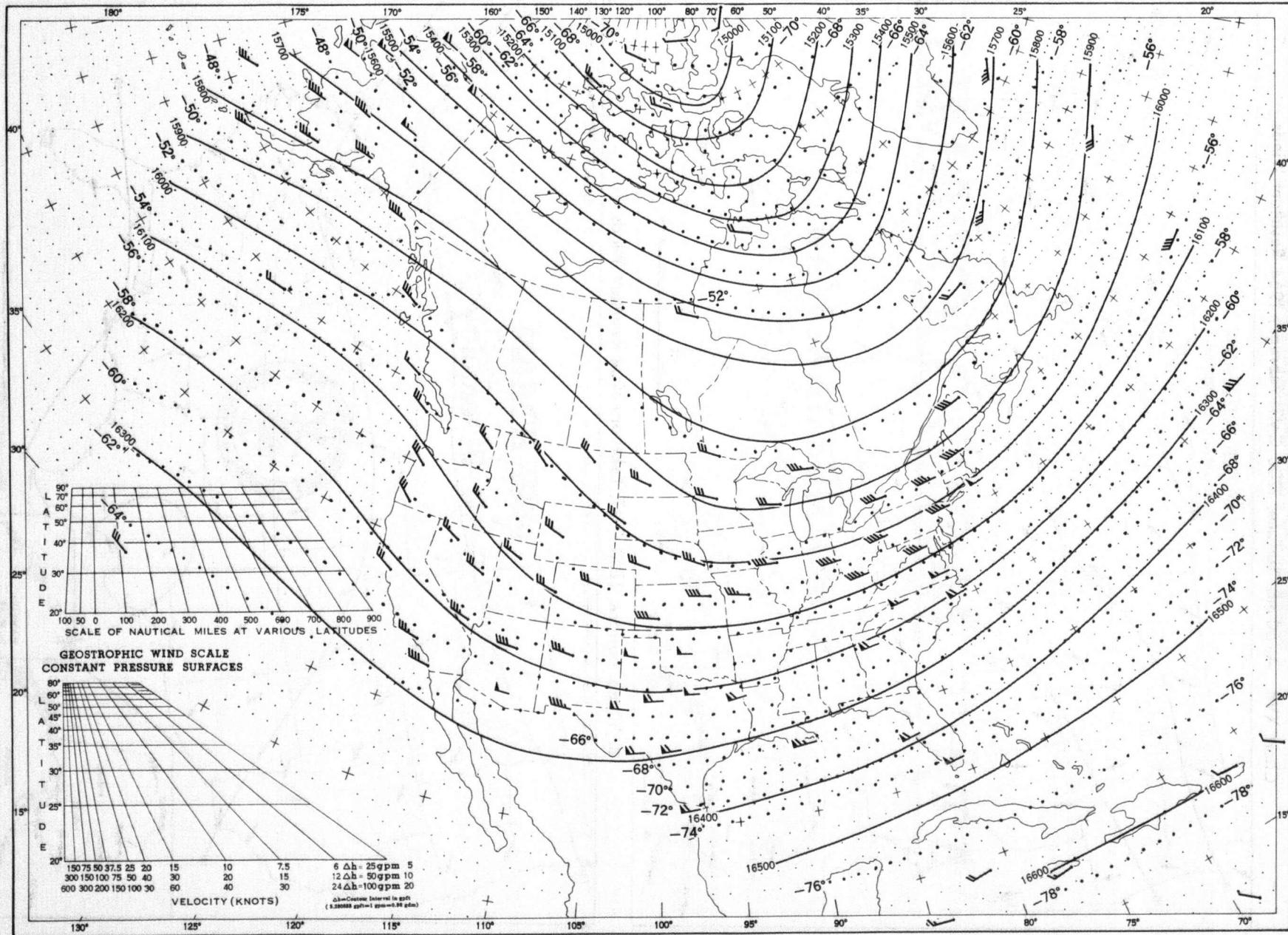
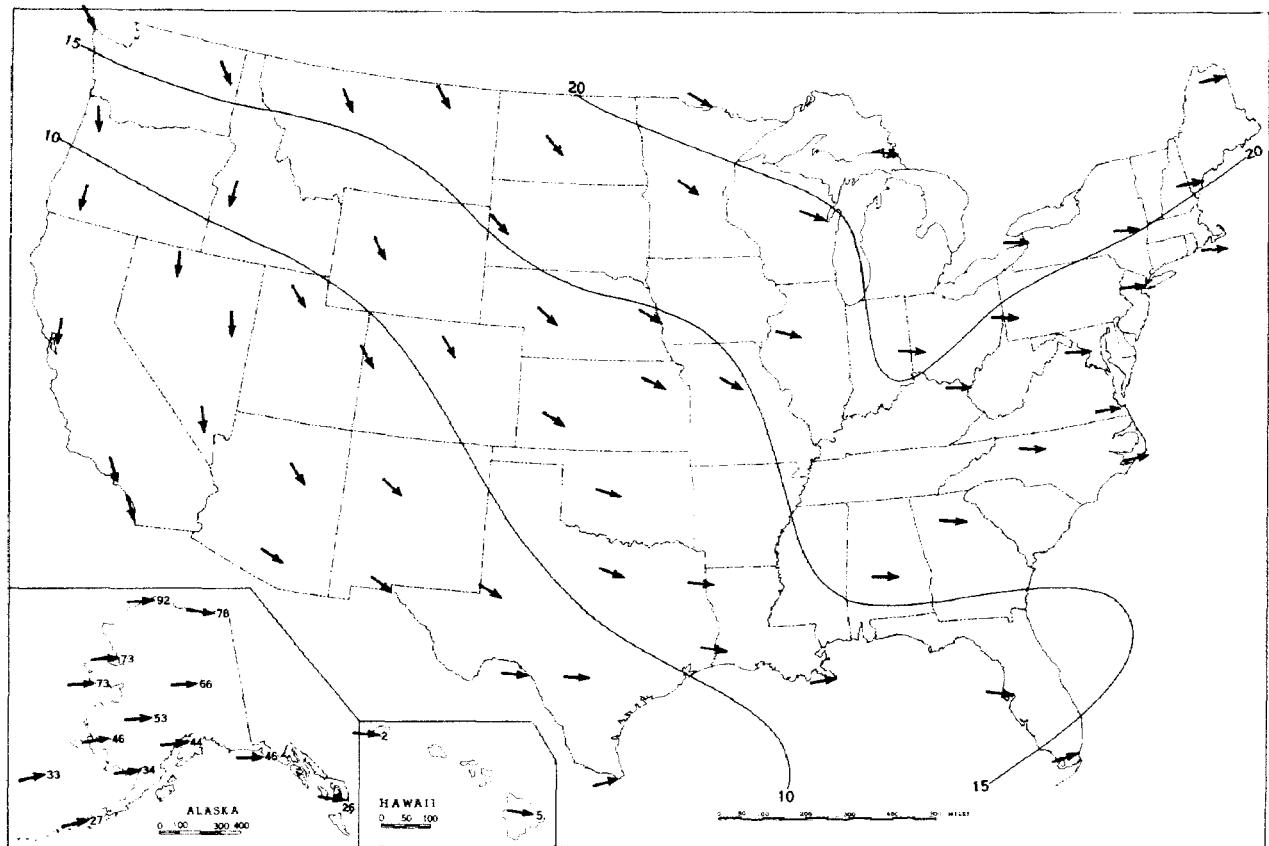


Chart XVI. 100-mb. Surface, 1200 GMT, February 1964. Average Height and Temperature, and Resultant Winds.

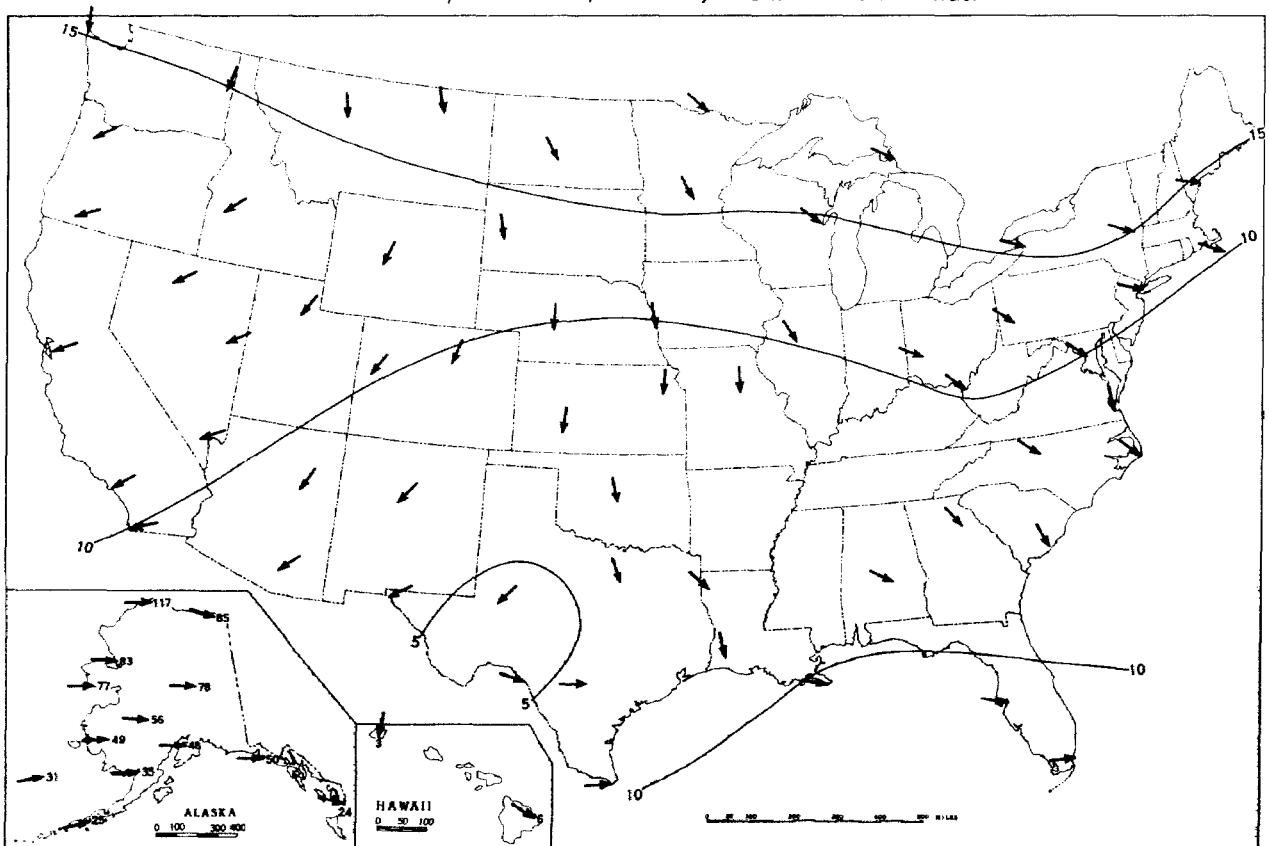


See Chart XI for explanation of map.

Chart XVII. A. 50-mb. Surface, 1200 GMT, February 1964. Resultant Winds.



B. 30-mb. Surface, 1200 GMT, February 1964. Resultant Winds.



Wind speed (isotachs) in knots. Arrows show resultant wind direction. All wind data are based on rawin observations.

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